THE JOURNAL
OF THE
OKLAHOMA STATE MEDICAL ASSOCIATION

VOLUME XXIV MUSKOGEE, OKLAHOMA, OCTOBER, 1931. NUMBER 10

Published Monthly at Muskogee, Oklahoma, under direction of the Council.

TERRELL'S LABORATORIES

North Texas and Oklahoma Pasteur Institutes

PATHOLOGICAL BACTERIOLOGICAL SEROLOGICAL CHEMICAL

FT. WORTH - MUSKOGEE - AMARILLO

X-RAY *and* RADIUM DEPT.

FORT WORTH

DOCTOR:

The Oklahoma City Clinical Society

invites you to the

ANNUAL FALL CLINICS

to be held at

Oklahoma Club, Oklahoma City

NOVEMBER 2, 3, 4, 5, 1931

POST-GRADUATE COURSES — LECTURES — HOSPITAL CLINICS
DEMONSTRATIONS — ROUND TABLE LUNCHEONS
BANQUETS — DINNERS — COMMERCIAL
AND SCIENTIFIC EXHIBITS
TALKING PICTURES
ENTERTAINMENT

Eighteen Distinguished Guests

Plan now to come *See page VII, for program*

OCT 21 1931

TABLE OF CONTENTS PAGE IV

Announcements

1. Simple, quick laboratory test for early diagnosis of pregnancy as reported by Drs. Friedman and Lapham of the University of Pennsylvania in the March issue of American Journal of Obstetrics and Gynecology.
    1. Positive within one week following cessation of Menses.
    2. 3 ounces non-preserved sample of urine shipped in cold thermos container is all that is required from patient.
    3. Test requires only 48 hours' time.
    4. In series reported to date, test has been 100% accurate.
    5. Based on production of corpora hemorrhagica on ovary of non-pregnant rabbit.
    6. Thermos containers furnished upon request.
    7. Fee is $10.00. Reports wired.

2. Reduction in price of Antirabic Vaccine.
    1. Semple method, 14 doses.
    2. U. S. Government License No. 98.
    3. Product approved by Council on Pharmacy and Chemistry of A. M. A.
    4. Price now $14.00, lowest in the United States.
    5. Wire collect for treatments.

Medical Arts Laboratory, Inc.

802 Medical Arts Building

OKLAHOMA CITY, OKLAHOMA

Diagnostic Laboratories

prepared to do all types of laboratory tests which aid in diagnosis, including:

Biopsy Specimens
Basal Metabolism
Surgical Specimens
Animal Innoculations
Post Mortem Specimens
Dark Field Examinations
Post Mortem Examinations
Blood and Urine Chemistry
X-RAY EXAMINATIONS, ALL TYPES

SEROLOGY—including Kolmer's Standard Wassermann; very sensitive Precipitation tests, Kahn, Kline's slide test; and special exclusion test useful in many cases when exclusion of Syphilis is important.

BACTERIOLOGICAL EXAMINATIONS of all types, including Widals, Sputum for T. B., Stool examinations, Agglutination tests for MALTA FEVER, and tests for Tularemia, etc.

Containers Mailed on Request.

SPECIAL RATES TO HOSPITALS AND CLINICS.

J. SCHAEFER,
Bacteriologist.

HUGH JETER, M. D.,
Director and Pathologist.

1200 North Walker. Oklahoma City.

INDEX TO CONTENTS

VOL. XXIV OCTOBER, 1931. No. 10

Page

Silicosis
F. V. Meriwether, M.D.
R. R. Sayers, M.D.
Picher 317

Legal vs. Physical Disability in Compensation Cases
Wm. H. Bailey, A.B., M.D.
Oklahoma City 325

Diagnosis and Treatment of Arthritis
Edward K. Witcher, M.D.
Tulsa 327

The Treatment of Fractures By Skeletal Traction
S. R. Cunningham, M.D., F.A.C.S.
Oklahoma City 331

Rationale of Vaccine Therapy in Chronic Infectious Arthritis
E. Goldfain, M.D.
Oklahoma City 332

Arthritis
W. P. Fite, M.D.
Muskogee 335

Operative Treatment of Unreduced Dislocated Elbow
D. H. O'Donoghue, M.D.
Oklahoma City 337

EDITORIAL

Cooperation in Small Towns 340
Medical Practice Lagging 340
From the Woman's Auxiliary 341
Editorial Notes—Personal and General 342

Abstract Department:
Urology and Syphilology 342
Miscellaneous 324-327-330-332-334-336-339
Officers of County Societies 344
State Officers and Committees XVII

The
PEARSON SCHOOL
(SUCCESSOR TO THE SOUTHARD SCHOOL)
FOR
Exceptional Children

An all year round home-school-camp for nervous, backward and problem children of any age. Experienced teachers. Individual instruction. Pupils from six States. Enrollment limited. Private home atmosphere. Flower and vegetable gardens. Playground equipment. Complete physical and psychological examinations. Medical service. School under direction of founders. Chartered. Literature upon request.

Stella R. Pearson, Director and Psychologist
Lulu P. Holcombe, Superintendent

23rd to 24th Street on Arline
Muskogee, Oklahoma

Mercurochrome
—220 Soluble
Dibrom-Oxymercuri-Fluorescein)

THE STAIN PROVIDES FOR PENETRATION
And
FIXES THE GERMICIDE IN THE TISSUES

Mercurochrome is bacteriostatic in exceedingly high dilutions and as long as the stain is visible bacteriostasis is present. Reinfection or contamination are prevented and natural body defenses are permitted to hasten prompt and clean healing, as Mercurochrome does not interfere with immunological processes. This germicide is non-irritating and non-injurious when applied to wounds.

HYNSON, WESTCOTT & DUNNING
Baltimore, Maryland

THE JOURNAL

OF THE

OKLAHOMA STATE MEDICAL ASSOCIATION

VOLUME XXIV MUSKOGEE, OKLAHOMA, OCTOBER, 1931. NUMBER 10

SILICOSIS[1]

F. V. MERIWETHER, M.D.
R. R. SAYERS, M.D.
PICHER

Silicosis is a chronic disease of the lungs caused by the inhalation of minute particles of silicious dust. It is characterized anatomically by fibrotic changes in the lungs and clinically by progressive dyspnoea, decreased chest expansion, and decreased capacity for work out of proportion to physical evidence of disease.

HISTORY OF THE DISEASE

The early history of silicosis is somewhat obscured due largely to the lack of knowledge of the various respiratory diseases on the part of early writers. Probably the most complete history of the disease is that given in the Milroy Lectures of Dr. Edgar L. Collis[4]. Dr. Collis quotes Herbert Spencer in his account of human progress as saying that the starting point was "localization of human industries." He also quotes Sir Charles Lyell[5] and Dr. Isaac Taylor[6] as having described such localization in prehistoric factories for the manufacture of flint implements. In another place Dr. Collis quotes Chateauneuf as saying: "By a fate which seems connected with all that concerns the art of war, this industry slays those who follow it; it kills them before their time; for them there is no old age. When asked the cause of so premature a mortality, doctors and officials give the same reply—pulmonary phthisis induced by prolonged inhalation of dust generated from working flints." This author states the "probability suggests therefore that the starting point of human progress was associated with at least one form of industrial pneumonoconiosis." Dr. Collis quotes Hippocrates in his epidemics as speaking of the metal digger "as a man who 'has his right hypochondrium bent, a large spleen, and a costive belly; he breathes with difficulty, is of pale wan complexion and is liable to swelling in his left knee.'" He also quotes George Bauer, who wrote under the name of Georgius Agricola, in his work De Re Mettallica, stating that "other mines are very dry, and the constant dust enters the blood and lungs, producing that difficulty of breathing the Greeks call asthma. When the dust is corrosive it ulcerates the lungs and produces consumption."

Other writers of this period described the effects of dust upon the lungs and displayed a knowledge of the disease little short of present knowledge. In 1862, a Royal Commission was appointed in England to inquire into the health of miners. The clinical observations of the Commission revealed clearly the nature of the trouble from which the miners suffered, but attributed the findings to bad living conditions, lack of ventilation and explosive fumes. These conditions are recognized today as being of some importance in the incidence of pneumonoconiosis, particularly ventilation, and strange to say, among the silicotic cases of the lead and zinc miners there is a prevalent idea that their physical condition is due to the same causes found by this Commission. In 1902, a Departmental Committee was appointed, of which Dr. J. S. Haldane was a member, to investigate the high death rate from phthisis among the Cornish tin miners. This committee concluded that the high death rate was due to the dust. During this period the importance of dust was recognized by the medical profession and many articles appeared on the subject, but for a time thereafter very little thought was given to it. Within the last few years more serious thought has again been given to this disease and it has been found that it is widely scattered throughout the world. The disease has been studied in Australia, New Zealand, Great Britain, South Africa, and the United States. More work has been done in South

1. Published by permission of the Director, U. S. Bureau of Mines. (Not subject to copyright). Presented at the meeting of the Oklahoma State Medical Association at Oklahoma City, Okla., on May 11-12, 1931.

2. Surgeon, U. S. Bureau of Mines; passed assistant surgeon, U. S. Public Health Service.

3. Chief Surgeon, U. S. Bureau of Mines; surgeon, U. S. Public Health Service.

4. Collis, Edgar L., Milroy Lectures, 1915, p. 3.

5. Lyell, Charles, Antiquity of Man.

6. Taylor, Isaac, Origin of the Aryans, p. 181.

7. Annals d'Hygiene Public, Vol. 16, p. 10, Paris, 1831.

Africa than in any other country in the study of silicosis, as a far greater number of men (from 12,000 to 15,000 whites and about 180,000 blacks) in a limited region are exposed to rock dust containing a high percentage of silica. For the years 1908-1909 the Miners' Phthisis Commission of South Africa[8] considered that out of a mining population of 12,000, approximately 1,000 men in any one year would reach the stage of definite incapacitation.

8. Irvine, L. G., and Watt, A. H., Miners' Phthisis. Reprint from Transvaal Med., Jour., September, 1912, 12 pp.

On account of the heavy morbidity from miners' phthisis a miners' Phthisis Medical Bureau was established in Johannesburg in 1916, under Government auspices[9] for the purpose of periodical examination of miners.

In the United States investigations have brought out the fact that silicosis is present in many of the mining districts. In Missouri, in the Joplin district, Dr. Lanza[10, 10a] found that 433 miners out of 720 examined had silicosis He also found that 432 out of 1,018 examined in Butte, Mont., were so affected. The disease has been found in Nevada, Idaho, Arizona, California and Alabama. Jarvis, Hoffman and others, and more recently Russell and Thompson, have shown the mortality from this disease to be very high among granite workers in Vermont.

9. Steuart, W., Radiography in Its Relation to Miners' Phthisis on the Witwatersrand. Reprint from Archives of Radiology and Electrotherapy, February, 1923, 12 pp.

10. Higgins, E., Lanza, A. J., Laney, J. B., and Rice, G. S., Siliceous Dust in Relation to Pulmonary Disease Among Miners in the Joplin District, Missouri. Bull. 132, Bureau of Mines, 1917, 116 pp.

10a Harrington, D., and Lanza, A. J. Miners' Consumption in the Mines of Butte, Montana, Technical Paper 260, Bureau of Mines, 1921, 19 pp.

ETIOLOGY

The causes of silicosis can be divided into predisposing and exciting causes. Among the predisposing causes may be mentioned race, age, occupation, physical condition, and disease.

Age. Age is a very predisposing cause of silicosis. Apparently during the early years of working life the incidence of silicosis is comparatively low, but with increase in age there is a definite increase in the incidence of silicosis until the age of 40 is reached, when there is a sharp fall in the length of time employed in dust before first-stage silicosis is developed. Dr. L. G. Irving, in his report of 1928, shows the silicosis incidence to be as follows: 30 to 33 years of age, 0.83 per cent; 34 to 37, 2.61 per cent; 38 to 41, 3.34 per cent; 42 to 45, 3.77 per cent; and over 46, 3.51 per cent. The Bureau of Mines found that of 8,000 individuals examined, in the age group ranging from 20 to 29 years inclusive, 10.31 per cent had silicosis; from 30 to 39 years, 32 per cent had silicosis; from 40 to 49 years, 47 per cent had silicosis. The figures given seem to indicate that the critical age in the incidence of silicosis is around 40 years. This was thought to be due to the length of service underground, but the tabulation of the men entering mines under 20 years of age shows that 20.30 per cent ultimately developed silicosis; of those from 20 to 29 year of age, 20.80 per cent developed silicosis; of those 30 to 39 years of age, 24.10 per cent developed silicosis; and of those from 40 to 49 years, 24.70 per cent developed silicosis. The number of years worked by all men with first-degree silicosis averaged 12.99, but those starting in the mines after 40 years of age only worked an average of 7.33 years.

The occupation of the men is a very important predisposing factor. All men engaged in occupations that expose them to large amounts of dust, such as miners, certain steel workers, grinders, concrete dressers, glass blowers, and stone dressers are likely to contract silicosis. It is essential that the medical profession should be sufficiently familiar with industries known to expose men to dust to enable them to know what particular occupations expose the men to undue amounts of dust. In mining, generally speaking, such occupations are largely limited to face men, most of whom are drillers, shovelers and their helpers, roof trimmers, etc. Silicosis should always be looked for among men engaged in such occupations.

The exciting cause of silicosis is the inhalation of finely divided particles of silica (SiO_2) over a relatively long period of time. Other dusts will produce a fibrosis of the lungs, but the fibrosis produced by these dusts usually can be distinguished from that produced by dust high in free silica by the roentgenograms and in some instances by clinical manifestations. The harmfulness of the dust varies with the kind of dust, the continuity or irregularity of exposure, the characteristics of the dust particles, the quantity breathed and the physical condition of the men exposed. It is now generally accepted that dust containing free silica is the most dangerous. Dust containing a rela-

tively small percentage of free silica, is known to have caused silicosis, but only after a long period of exposure. There are several theories advanced to account for the harmfulness of silica dust. The old theory, and one accepted by many, is that the fibrosis is produced by the action of the sharp cutting edges and needle-like points, together with the insolubility of the dust particles. Dr. Leroy U. Gardner[11] called attention to the fact that all dust particles with such physical characteristics, carborundum for example, would not readily produce a fibrosis. Dr. Haldane notes that silica dust without sharp-pointed particles, as precipitate silica, heated enough to dehydrate, if inhaled, will cause silicosis similar to that produced by quartz dust. These facts caused many investigators to believe that the mechanical action of silica particles is of very little importance. Many investigators think that the fibrosis is produced by the chemical action of silica. W. M. Myers[13] found that silicious dust from the Picher field was soluble in

11. Gardner, Leroy U., Studies on Eperimental Pneumonokoniosis., reprinted from The American Review of Tuberculosis, Vol. XX, No. 6, 1929.

13. Myers, W. M., Solubility of Finely Divided Rock Dusts in Water, Kerosene and Alcohol. Reports of Investigations, Serial 2548, Bureau of Mines, 1923.

water. Dr. A. Mavrogordato[14] reports that silica is soluble in weak alkaline solution similiar to body fluids. He concluded that the solubility and chemical activity of silica are of great importance and that hardness and sharpness are of but little importance in causing silicosis. Other investigators concur in these findings and apparently laboratory workers on silicosis are inclined to believe that the lung changes are produced by the chemical or toxic actions of silica.

Another physical characteristic of etiological importance is the size of the dust particles. It is generally accepted by most writers that only those particles less than 10 microns in diameter are retained in the lung tissue. The larger particles are caught and removed by the ciliated epithelium of the air passages of the lungs. Of those that reach the lungs the smaller particles are more numerous and more likely to cause fibrotic changes. Dr. A. Watkins-Pitchford and Dr. Moir write

14. Mavrogordato, A., Studies in Experimental Silicosis and Other Pneumonokonioses, Publication of the South African Institution for Medical Research, Johannesburg, March 31, 1922, 164 pp.

that the dust particles in the lungs of miners on the Rand were mostly less than 5 microns long; only one particle in 2000 was over 8 microns and only one in 1,000,000 was as much as 14 microns long.

The quantity of dust to which men are exposed is one of the most important etiological factors. This is recognized by investigators and an attempt was made to set an arbitrary limit upon the amount of dust in the air that would offer a reasonably safe condition. D. Harrington[15] states that the South African Standard is 5 mg. or 300,000,000 particles per cubic meter of air. Dr. W. T. Nelson of Australia[16] states that "The Inspector of Mines considers it inadvisable for men to work in air in which dust counts exceeding 300 particles per cubic centimeter have been obtained."

Lanza and Higgins[10] state that "It has been demonstrated in the sheet ground mines of the Joplin district that by the proper use of water and the regulation of certain details of mining, the quantity of

15. Engineering-Hygenic Aspects of Dust Elimination in Mines, p. 201.

16. Report of an Investigation of Pulmonary Condition of Mine Employees, Western Australia, years 1925-26, pp. 50-53, Table 2, S. P. No. 5.

10. Higgins, Edwin, Lanza, A. J., Laney, F. B., and Rice, Geo. S., Work Cited page 5.

dust in the mine air can be kept below 1 milligram per 100 liters of air; so it seems reasonable to use 1 milligram as a standard at least for the Joplin district." Since these data were obtained the State of Oklahoma has passed a metal-mining code, which has also been adopted by the State of Kansas, and which applies to the metal mines in the Tri-State district. Section 7 of the code sets the standard as 300 particles per cubic centimeter. The figures given indicate that the consensus of opinion of various investigators is that the quantity of dust in the air should not exceed 5 mg. or 300,000,000 particles per cubic meter. But to maintain this standard in many mines is very difficult, so much so that many mines do not undertake to do so. D. Harrington states[15] that "There is probably not one dry mine in the United States, coal or metal, where the average is as low as 5 mg. per cubic meter of air. In general the average air dustiness of working places of our dry metal mines runs about 20 mg. per cubic meter of air and many run above 50."

15. Work Cited, p. 11.

These figures indicate that the workmen in the dry metal mines of the United States are exposed to larger quantities of dust than those in South Africa or Australia, and it would be logical to assume that the American miners would contract

silicosis in a shorter period of time. In the gold mines of South Africa where conditions are good the average time of exposure of men before simple silicosis can be diagnosed is 7½ years; the shortest period of exposure is reported to be 2½ years.

Each of the factors given, *namely*, kind and quantity of dust, physical characteristics, physical condition of men, and length of exposure, has an important bearon the etiology of silicosis, but as the data show, their relative importance varies with different localities, fields, and working conditions to such an extent that it is impossible to assign to each an arbitrary figure that is comparable to the whole. It is probably better to consider them as a whole and say that under average conditions first-stage silicosis will occur in from 7 to 10 years, and with unfavorable conditions this period will be reduced to as low as 2 or 3 years, and possibly less. With ideal conditions it is possible for men to work in metal mines for many years without sufficient changes in the lungs to justify a diagnosis of silicosis.

SYMPTOMS

The development of silicosis may extend over a period of years and be so gradual that the early symptoms of the disease are often not recognized by those so afflicted or are considered to be such a slight departure from the normal that they are not important. This makes the diagnosis of silicosis in the early stage from symptoms only exceedingly difficult. As the disease progresses the clinical symptoms become more definite and those afflicted recognize that there exists some condition which interferes with normal working efficiency. With further progress of the disease the working efficiency becomes so markedly affected that there is in many cases total disability. In this state there is a definite tendency to develop complications, particularly tuberculosis or infective silicosis. The slow progress in the development of the disease has caused observers in this country and abroad to divide the disease arbitrarily into various stages. In the United States silicosis is divided into three stages; *namely*, first, second, and third. In South Africa the law defines the stages as anteprimary, primary, and secondary. An Australian report[16] divides pulmonary findings into fibrosis increased, early silicosis, advanced silicosis, silicosis plus tuberculosis, and tuberculosis only. The symptoms are somewhat different in the three stages.

Subjective Symptoms. The subjective symptoms in early silicosis are more vague and infrequent than would be expected from the definite lung pathology revealed by X-ray examination. Only about one-third of the men admit any symptoms. Symptoms are more often noted in the nervous or neurotic type of individual than in the sturdy individual. The most common symptoms are cough, slight shortness of breath, expectoration, pain in chest and frequent colds. Of the symptoms given, the one most frequently noticed by the men is the tendency to colds. Many miners state that they have colds during the entire winter. The colds have a tendency to persist in spite of energetic treatment for a long period of time and in the late stages of the disease the cases are practically never entirely free of chest colds.

16. Work Cited, p. 11.

The cough in the early stage is not troublesome, but in most instances is noticeable in the morning. As the disease progresses the cough becomes a characteristic dry, hard, irritating one, occurring most frequently in the early morning or at night. The cough is rarely productive in the early stages of silicosis but it usually is productive in the later stages and when complicated with some infective disease.

The shortness of breath in the early stage is very slight and is only noticeable on extreme exertion, but with progress of the disease there is a progressive increase in this symptom and in the late stages it becomes distressing on the least exertion. Manual labor in the late stages is impossible in most instances due to the marked dyspnoea. In some cases the dyspnoea is so marked that the patients are forced to stay in bed in a semi-reclining position. Respiration becomes difficult and is accompanied with marked effort. In this condition the fight for breath overshadows all other symptoms.

Pain in the chest is not a frequent symptom in the early stage but becomes a common symptom in the late stages. The pain is vague and flitting, usually located in the bases of the lung, but quite frequently noticed in the anterior section or in the axilla. The pain is usually attributed by the miner to rheumatism, and unless the patient is specifically asked with refer-

ence to rheumatism this symptom is often overlooked.

An important symptom in the late stages of the disease is the gastro-intestinal disturbances. This symptom is rarely noticed in the early stages. Many miners attribute their marked dyspnoea and physical incapacity to gastro-intestinal diseases and frequently consult physicians for this symptom.

Flatulency, constipation, and indigestion are common complaints. The men believe that the cough is due to indigestion and often refer to it as a stomach cough. The cough is sometimes relieved by vomiting. Dr. Lanza in his work in the Joplin field found that morning sickness was a common symptom. In the Picher district this symptom was not noticed to the extent noted by him in the Joplin field, but it has occurred sufficiently often to be considered a symptom of some importance.

Night sweats and hemoptysis occur in the late stages of silicosis but are not considered as symptoms of this disease, but indicative of some infection.

Objective Symptoms. The objective symptoms are not as definite as would be expected from the X-ray findings. This is particularly true in the early stages of silicosis and for this reason in all instances where silicosis is suspected a thorough physical examination and an X-ray picture of the chest should be made.

Inspection. The men appear healthy, with ruddy complexion, and more robust than the average healthy individual. There is a definite tendency for men with silicosis to gain in weight. This is particularly true in the first and second stage of silicosis, and even in the third, if not complicated with some infection. In some instances in the late stages the increase in weight is very noticeable and the patient becomes what may be termed "fat." These cases suffer intensely from dyspnoea. The tendency to gain in weight may be due in part to the fact that silicosis is a disease which occurs most frequently around 40 years of age when there is a tendency toward a gain in subcutaneous fat. This is probably aided by a slowing-down in the amount of manual labor performed by the men on account of dyspnoea resulting from exertion. The men appear to stand more erect and to be more muscular than normal individuals, especially in the second and third stages unless the disease is complicated by some infection. The chest appears to be unusually thick. This is not so noticeable in the first stage but becomes very noticeable in the second stage and in the third stage the chest appears to be in nearly full inspiration. This increase in the anterior-posterior diameter of the chest gives these cases an appearance of unusual physical development. The respiratory movements of the chest are but slightly changed in the first stage, but even in these cases the movements of the chest are not fully elastic but are of a retarded, dead character. In the second stage the chest appears to move as one piece, especially the upper half, and in the third stage the movement becomes difficult; the breathing is largely disphragmatic, with marked action of the accessory muscles of respiration.

Mensuration. The cardinal physical finding in silicosis is the decrease in chest expansion. This decrease of lung expansion is of relative importance and cannot be accepted as a literal finding, for it is well known that many men in excellent health have a small lung expansion. This is particularly true of the average American negro. The General Report of the Miners' Phthisis Prevention Committee, March 15, 1919, calls attention to this fact by stating: "It is not every one, even with normal respiratory capacity, who knows how to expand his chest properly and individuals vary very much in their initial respiratory capacity. A man whose initial expansion was 4 inches may have impaired expansion at 2½ inches." Another, even at his best, may never have had as much as 2½ inches. It is therefore necessary in order to evaluate the findings from measurements of the chest to have some information on the normal chest expansion of the man being examined. This is particularly true in the first stage of silicosis where there is only a small decrease in lung expansion.

A study of several thousand physical examinations, of which 2,018 had silicosis or silico-tuberculosis, shows that the average lung expansion for the negative subjects was 3.20 inches; silicotic subjects first stage, 3.01 inches; second stage 2.91 inches; third stage, 2.88 inches; those having silicosis complicated with tuberculosis 2.42 inches. These figures reveal that there is only a very small decrease in lung expansion in silicosis and emphasize the importance of repeated examinations in order for this physical sign to be of diagnostic value.

Palpation. There is nothing revealed by palpation of the chest in silicosis that is not revealed on inspection and mensuration. There is little, if any, change in tactile fremitus.

Percussion. The percussion note is usually resonant throughout the chest, but even in the early stages a slight change in the character of the tone is sometimes noted. This becomes very definite in the late stages and is sometimes described as a "dead" sound.

Patches of dullness may occur in the first stage. Such areas appear most frequently as the disease progresses. Dullness is usually located in the lower part of the chest, most often in the right axilla and is considered to indicate thickened pleura. Some care must be emphasized in detecting this sign, as the areas are often small.

Auscultation. Auscultation reveals a definite difference in breath sounds in a large number of cases, even in early silicosis. This sound is described by different terms and is usually referred to in our own work as a "rough" sound. The respiratory wave is short, jerky, interrupted or metamorphosing inspiration with a prolonged expiration. The inspiratory sound is usually shorter and clearer than normal. The expiratory sound is more prolonged. The changes in breath sounds are most easily detected over the anterior or lateral lower sections of the chest, but in some instances are heard over the entire chest. This type of respiration occurred in 57 per cent of our cases in early silicosis, the incidence increasing with the disease until the third stage, when in all uncomplicated cases this sign was noted. This type of respiration is not so noticeable after the disease becomes complicated with some infection.

With marked pathology indicated by X-ray findings, rales in large numbers would be expected, but apparently they are only occasionally present in uncomplicated silicosis. When present they usually indicate some infection complicating silicosis. All varieties are often heard in the third stage of the disease due to complications with infectious diseases.

The objective symptoms of silicosis as a whole are not definite enough to justify a diagnosis in the early stages without the aid of X-ray pictures. In the later stages they are sufficient to enable the clinician to make a diagnosis with a fair degree of accuracy.

X-ray Findings. The value of the X-ray method of diagnosis is largely dependent upon the skill of the technician making the pictures and the experience of the reader in interpreting them. X-ray pictures should be made slightly harder than chest pictures for tuberculosis. This is necessary in order to block out the general "haziness" or "fuzziness" occurring in such a large number of cases, which is probably the result of general inflammatory conditions from bronchitis accompanying the silicosis. This method enables the reader to classify the lung changes with more definiteness and lessens the number of differences between clinical and X-ray findings. While the X-ray pictures give a very definite idea of the extent of the pathological changes occurring in the lung, the reader should have clinical experience also. Only with wide clinical experience can one determine the effect on health or working efficiency.

In first degree silicosis the X-ray pictures show that the hilum shadows are more dense and larger than normal. In many instances large calcified spots are noted in and around the hilum shadows. These are larger than those usually observed as a result of tuberculosis in childhood. The hilum shadows do not increase in size with progress of the disease, but there appears to be a definite tendency to a decrease in their size in the late stages. Following enlargement of the hilum shadows the entire bronchial tree increases in density. The bronchial tree is very noticeable and can be traced to the outer margins of the lungs. Along the thickened bronchial tree, appearing first near the hilums, are small shot-like spots, sometimes described as "beads" or bronchial "buds." These spots or "buds" are fairly dense, about 1/8 inch or less in diameter, discrete, and irregular in outline. When the spots become noticeable throughout the lower section of the lungs, in this country it is regarded as the beginning of first stage silicosis. With advance in the disease the spots increase in number, density, and size, they are clearer in outline and the condition can best be described as a general mottling. The mottling is bilateral and the density is about equal on both sides, indicating that the changes started in both sides at about the same time. This is what is usually considered the second stage of the disease. With ad-

vance in the disease these spots tend to coalesce, forming large areas of marked density. These areas usually occur in the mid-section of the lung or near the bases and present the appearance of a tubercular consolidation. The areas are usually bilateral and blend so perfectly with the snowstorm appearance of the lungs that it leads to a suggestion of silicotic areas which the physical examination and laboratory findings tend to confirm.

This is termed the third stage of the disease. The diaphragm is usually normal in the early stages of the disease but with advance in the disease there is an increasing number of cases with humping or tenting of the diaphragm, so that in the last stage the incidence of tented or humped diaphragm is fairly high. In this stage there is often a misplacement of the heart due to the chest pathology.

With efficient technique in the operation of the X-ray machine and with a fair amount of clinical experience the physician can make a definite diagnosis of silicosis by the X-ray alone and can distinguish it from other chest pathology with reasonable certainty.

Infective Silicosis. As previously stated, silicosis seldom reaches the terminal stage without some complication. There is apparently a definite inability in these cases to throw off any respiratory infection that they contract. Consequently in the terminal stage (third stage) many of these cases expectorate daily enormous quantities of a purulent exudate similar to that noted in bronchiectasis. The examination of this exudate shows almost all the organisms commonly found to cause pathology in the chest, such as pneumococcus, staphylococcus, streptococcus, T. B. bacilli, and spirilla. Cases in this condition are practically all bed-ridden and by most observers are considered to be complicated with tuberculosis. In the cases complicated with silicosis, if the tuberculosis exists prior to the contracting of silicosis or develops in the early stages of silicosis, the course of the disease and the symptoms resemble closely those of tuberculosis. In the cases where tuberculosis is a complication occurring after silicosis is well developed the symptoms and physical signs resemble more closely those of uncomplicated silicosis.

Prognosis. The prognosis in silicosis is favorable if the disease is detected in the early stages. Practically all first-stage silicotics can improve to recovery if removed from a dusty atmosphere; the majority of second-stage cases can improve materially, if not completely recover, when removed from dusty work. In the third-stage the prognosis is not so favorable. The majority of these cases become complicated with some infection and terminate fatally. The prognosis in infective silicosis is not as favorable as in uncomplicated silicosis, but it is by no means always fatal.

Treatment. The Treatment can be divided into preventative and curative. The preventative treatment lies entirely in protecting these men from exposure to unduly large amounts of dust. The yearly physical examination of men is necessary in order that as soon as the first evidence of silicosis is found they can be warned to change their occupation to a nondusty one.

The curative treatment is to remove these cases from a dusty occupation. In the early stages this is all that is necessary. In the later stages treatment of symptoms as they arise gives some relief. However, we should like to call attention to the fact that in our experience the placing of these men in hospitals at absolute rest, as is done with marked benefit in tuberculosis, often proves very detrimental. It seems better to allow them some daily exercise.

SUMMARY

1. Silicosis or miners' phthisis has been known to occur among miners in certain districts for centuries.

2. Silicosis is due to breathing very fine rock dust. Rock dust high in free silica is found to be most injurious. The chief predisposing causes are the physical condition, occupation and age of the men.

3. It is customary to divide the disease into three stages; in America they are commonly referred to as first, second, and third.

4. The cardinal symptom of silicosis is shortness of breath, especially on exertion. The cardinal sign is diminished expansion of the chest. Both are slight in the early stages and increase gradually with development of the disease. Other symptoms and signs, as coughing, frequent colds, pains in the chest, and X-ray findings, are very important in making a diagnosis.

5. The symptoms and physical signs in

first-stage silicosis are vague and indefinite, but when present the most common are shortness of breath, cough, expectoration, tendency to frequent colds, a decrease in lung expansion, limitation of movement of the chest, and a change in breath sounds, which become roughened on inspiration with relatively short expiration.

6. The symptoms and signs of second stage silicosis are those of the first stage, but are usually definite enough to enable the disease to be diagnosed without an X-ray.

7. In third stage silicosis the symptoms and signs are definite, and in addition to those given under first stage, night sweats, hemoptysis (probably due to infection) and gastrointestinal disturbances are often noticed. The most prominent symptom is gastrointestinal disturbance.

8. X-ray findings in silicosis show in the first stage an enlargement of hilum shadows and a "budding" or "beading" along the bronchial tree. As the disease progresses and the "buds" coalesce in large areas it becomes known as second-stage silicosis. When this develops into a large dense area in the center of the lungs it is usually referred to as third-stage silicosis. Diagnosis should be made after considering history, signs, and symptoms, including the X-ray.

9. Men having silicosis are more susceptible to tuberculosis than normal men.

10. Men with silicosis can improve in suitable surroundings to recovery in the first stage, can improve materially in the second stage, and somewhat in the third stage.

11. The elimination of silicosis among miners depends on preventing the formation of dust by wet mining methods—wet drilling and wetting sides, roof and bottom, muck, and rock piles; the use of sprays and water blasts to lay the dust after blasting; good mechanical ventilation to replace dusty air with clean air; and physical examination of all miners before employment and periodically thereafter.

12, All of these means of prevention must be practiced to insure success.

DISCUSSION: *Dr. P. M. McNeil,* Oklahoma City.

This paper is one of the best I have ever heard on silicosis. We do not see any cases down here except cases exposed to cement and various other forms of dust. I wish to ask exactly how long it takes for cement and other things of that nature to produce silicosis and what parts of the state we get silicosis production from?

Dr. C. E. Bates, Oklahoma City:

I would like to ask Dr. Meriwether, if he has had any experience among miners where the cases are from explosions.

Dr. F. V. Meriwether, Picher:

The gentlemen have asked a number of questions. I might say practically all dust presents definite X-ray pictures and where you have had considerable experience you can tell the dust by the X-ray picture. In some instances men have worked in several kinds of dust and it is rather confusing. In silicosis the X-ray picture is that of a snow storm.

Silicosis develops after a long period of time. In Picher it takes about 12.3 years on the average. When the conditions are bad the time is reduced to three years or as short a time as one year.

In some 30,000 cases we have only found, I think, five cases of malignancy of the lung. Malignancy is comparatively infrequent. With reference to the effect on the lungs following a mine explosion, it apparently does not affect the lungs, but it definitely does affect the brain. I have seen men become insane following a mine explosion.

During the past five years since we have been engaged in this study silicosis has been reduced 85%, tuberculosis 70%, syphilis 60%, but gonorrhea has not been reduced. We feel like we are accomplishing some eradication of the dust diseases in Picher.

PROTEIN MILK INDISPENSABLE IN SUMMER DIARRHEA CASES

A new protein milk in sterilized liquid form that is especially recommended for cases of summer diarrhea, is now available to physicians. It is probably one of the most convenient milk products ever offered to physicians as it is in concentrated liquid form and hermetically sealed in small six ounce cans. It never gets rancid and keeps in any climate. Since it is sterile, boiling is unnecessary.

This useful new product is identified by the trade name SMACO product number 201 Liquid Protein Milk and is prepared by the Research Division of S. M. A. Corporation. Many physicians refer to this product as Casein Milk, Eiweiss Milch or Finkelstein formula.

LEGAL VS. PHYSICAL DISABILITY IN COMPENSATION CASES*

WM. H. BAILEY, A.B., M.D.
OKLAHOMA CITY

The physician or surgeon who treats the class of cases coming under the jurisdiction of the Workmen's Compensation Act of the State may have been struck with the difference between the estimate of the degree of permanent disability of the patient from an industrial standpoint that he has made and the amount allowed by the Industrial Commission. For this latter factor I have chosen the term "legal disability."

It may have occurred to some of you that you have had a case in which you had secured unusually good results. Take a fracture case, for instance; you secured good anatomical results and the function was restored to normal. It is natural and desirable that we should feel a little proud over our good results. It is quite a surprise, almost a shock, to have the Commission allow the patient $300.00 to $400.00 for permanent partial disability. But you must not feel badly nor get "sore" about it. It may not be because of a true physical disability that the claimant was allowed the compensation but because of the legal disability that he was able to establish.

There are factors, other than medical, involved, which permit of such a decision being legally given at the present time. Even the medical testimony does not always influence the decision of the Commission as the predominence of evidence would seem to indicate. The Commissioners sit as both judge and jury. The evidence given by one doctor may out-weigh the testimony of three or four other physicians, in the mind of the commission.

The following is a case in point. A man received an injury while working for a street-car company. The company's doctor and three other physicians employed by the company to examine the man testified that they could find no evidence to support the claim of disability alleged. One doctor employed by the patient's attorney testified that he found a condition which he estimated would give the patient a 60% total permanent disability. The case was decided by the Commission according to the testimony of the patient's physician and the payment ordered on that basis. It was legal but was it just?

The Compensation Act is founded on a basic and just principle. It is right that a business shall carry as a legitimate expense against its operating cost the wear and tear on its human machinery the same as it does on its engines and boilers or the depreciation on its buildings and equipment. The time has passed when the State should be allowed to pass better laws for the protection and health of its hogs than it does for the health and happiness of its people. If an able-bodied man is injured in any industry in line of duty so that he is partially or wholly disabled from an industrial standpoint, he should receive from that industry an amount of money sufficient to compensate him for the degree of disability received. On the other hand, the industry should just as surely be protected from unjust claims. Simply because an employee has received a fracture or a sprain or an injury of any kind is not a competent reason for his receiving a sum of money as settlement for that injury, unless real physical permanent disability results. The Compensation Act provides for his loss of time by the weekly payments that he gets. It also takes care of all his hospital and medical bills. It was not intended as an accident claim agency where damages for injuries were to be obtained.

The Act was passed for the protection of the employee. It makes no difference whether the money paid comes from New York or Hartford or any other place outside of Oklahoma. In the last analysis it comes from the community where the accident occurs. It becomes a claim on society at large.

The injured employee is very apt to take the position that because he has been injured someone owes him something. He builds up his claim and presents it before the Commission. The Compensation Act provides that this claim shall be settled on the facts in the case. The Supreme Court has ruled that the Commissioners must give their decision on facts supported by evidence and there it stops. The respective weights of the facts presented does not concern them. Those points the Commission alone decides.

Now, what of the status of the doctor in these cases? When you have been the attending physician in a case your posi-

*Read before the surgical section, Annual Meeting, Oklahoma State Medical Association, Oklahoma City, May, 1951.

tion is secure and you should be able to give an accurate and fair estimate of the condition of the patient. Your opinion of the per cent of permanent disability should not be very far from correct. Take, however, another situation. The patient is sent to you to examine for the purpose of estimating his permanent disability, if any. The relation then between you and the patient is entirely changed. It is no longer a doctor and his patient but it now becomes an examiner and a claimant. The claimant has reviewed the facts in the case many times before in his own mind and with his attorney. Either unconsciously or because of coaching he withholds some facts from the examiner. Often these facts are very important and if they had been known by the examiner would have put quite a different light on the symptoms and have caused him to have made quite a different interpretation of his findings.

Take the following case as an example. A patient received an injury to his knee. The doctor employed by the man's attorney to examine him and to estimate his disability, diagnosed a fracture or dislocation of the internal semi-lunar cartilage of the knee joint. He estimated a 50% permanent disability for the knee. This was an accurate diagnosis and a fair estimate of the disability. But the facts that were withheld from the examiner and which were brought out by the previous testimony, which the examiner did not hear, were that two years before the patient had received a similar injury to the same knee for which he had received a settlement of 50% permanent disability for the knee. Also, on several occasions since, the knee had locked and was followed by the same group of symptoms from which he was now suffering. Was it fair that he should again receive disability for that knee? Can you imagine the surprise and embarrassment of the doctor when presented with these facts for the first time on the witness stand?

How can these difficulties be avoided? Should we take time to consult with the other doctors in the case? Should the attending physician be the only one allowed to testify or should he not be permitted to testify at all? Should the Commission appoint a referee to examine the claimant and consult with the other doctors or should this be a board of three physicians? Should any medical testimony at all be presented at the hearing or should the examining board or the referee simply submit their report in writing to the Commission and only non-medical facts be presented at the hearing? Expert testimony at the present time is a farce and almost worthless. It usually confuses rather than clarifies the situation. If you look long enough you can find doctors to support with an opinion practically any point which you wish to present. An expert can give as his opinion anything and that opinion cannot be impeached. If the doctors in the case could be permitted to withdraw to a room by themselves and hold a consultation the same as a jury does they could very soon bring into line any physician who was at wide variance with the majority. There will always be a difference of opinion among individuals, doctors are no different from other people in this respect. But these differences could be compromised and adjusted in conference.

The examining doctor should have access to all the facts. He should consult with the doctor treating the case, with the adjuster for the insurance company and with the claimant's attorney. There should be some uniform method of estimating the per cent of disability by certain specific facts as, extent of immobility, deformity of the part, the degree of atrophy, etc., each carrying a definite number of points. The amount of pain alleged can only be estimated as it cannot be measured. It is only fair that pain be considered but in claims for disability it is a very unsafe symptom and must be considered in that light. When it comes to the question of an accidental injury aggravating, activating or in any way affecting a previously existing condition or affecting a part so as to aid some subsequent condition developing there is always a wide variance of opinion. And who can definitely tell to what extent this has been a factor? A conference before the hearing might even be able to settle this point.

I mention a few additional points only to condemn them. There may be unprincipled doctors, who working with slick lawyers will present claims and support them with testimony that are so far out of line with what other examining physicians are able to find that it makes one shudder. No law or procedure can prevent such unjust practice. Education and not legislation must handle this factor. Then there are insurance adjustors that have been known to ask physicians to submit

false reports and so cheat the injured man out of a just compensation for actual disability. Doctors have been reported to have been offered a certain per cent of the award received for examining and testifying in cases. Still others have been accused of offering a certain per cent of the medical fee to adjustors and attorneys who would send them patients to examine. We can only lessen such practice by upholding the highest ethical standards for the profession, and both the medical and legal professions punish such individuals by expulsion when such conduct can be proven.

It is not just to say that because a doctor is regularly employed by an insurance company or the employer, that he will always give as his opinion an extremely low and unfair estimate of the injured man's permanent disability. Doctors so employed should be especially careful of this point. On the other hand, we should not accuse a doctor employed by the patient or his attorney of being unfair in his opinion and always favoring the patient. Here again the doctor must be unusually cautious so as not to give any just cause for criticism.

We should strive by every means possible to have the medical testimony in compensation cases agree in the major points at least. Let there be a free discussion and adjustment of opinion among the doctors on both sides of the case, since there must be two sides. If one doctor refuses to change his opinion, have the joint opinion of the other doctors so strong and positive and so unanimous that the opinion of the man out of line will be overwhelmingly out-weighed. Then the Commission will not become so confused that their decision will be merely a mental reaction but will be a clear opinion based on true conditions and facts. If this can be brought about we will see legal disability becoming equal to and the same as physical disability. This to my mind is the intent of the Workmen's Compensation Act.

FOUR TYPES OF ENCEPHALITIS

Milo K. Miller, South Bend, Ind. (Journal A. M. A., July 18, 1931), reports four types of encephalitis recently encountered in his practice. They consist of one case each of mumps meningo-encephalitis, postvaccinal encephalitis, measles encephalitis, and hemorrhagic encephalitis following arsenical therapy (sulpharsphenamine).

DIAGNOSIS AND TREATMENT OF ARTHRITIS*

EDWARD K. WITCHER, M.D.
TULSA

I have no new and startling information to bring you upon the subject of arthritis. My purpose is to emphasize certain phases of the subject which in my experience have seemed of great importance.

In much of medicine, particularly the field of internal medicine, the doctor assumes the role of a detective. The figure seems particularly suitable in the disease known as arthritis. The detective hears the patient's story, observes the swelling of the joints, palpates the joints, manipulates the joints, uses the X-ray and observes atrophic or hypertrophic changes in the joints, takes a careful history with particular reference to the onset, both remote and immediate, scans the family history for other arthritics, elicits a careful past history for the purpose of discovering an infectious disease as the cause of the arthritis. Whatever the deduction up to this point the patient is subjected to complete physical examination with a certain minimum of laboratory work.

Arthritis is essentially a clinical problem, not a laboratory problem. The routine laboratory work such as complete blood count, urinalysis, Wassermann, are done in all cases. Complete blood chemistry examinations are not frequently indicated. Sputum examinations in patients suspected of chronic lung infection are done. Stool examination after the three day Schmidt diet is done only in selected cases.

The blood count is of especial interest because a low red count is a reminder of the need for instructions for a blood building diet and possibly for some stimulation of the hemapoetic system. The differential count is of value in estimating the importance of an identified or unidentified focus of infection.

In the physical examination with the patient stripped the posture first attracts our attention. The source is not to be sought here but the obese arthritic with flat feet may not complain of the pains in the extremities with such emphasis as to demand proper attention to the orthopedic care of his feet.

*Read before the section on General Medicine, Annual Meeting Oklahoma State Medical Association, Oklahoma City, May 11, 12, 13, 1931.

Ghrist and Hench remark: "A common symptom in arthritis, periarthritis, or muscular rheumatism is marked stiffness and pain when the patient awakens in the morning, after a recumbent posture has been maintained in repose. Some of these patients experience such stiffness after even shorter periods in normal positions, such as an hour or two in the theater or in church, or even fifteen minutes in a chair. If the posture is at all abnormal or cramped, the discomfort comes on sooner and more readily. It is noteworthy that several patients had definite, altho minor, exacerbations following such temporary inactivity and in one instance marked recrudescence of disability in the joints was instigated by several hours' maintenance of a cramped position of the lower extremities during sleep. A lag in the circulation of the joints and muscles dependent on inactivity is generally blamed for the subsequent increase in discomfort. The underlying alteration in the chemical constituents of the tissue is not known, but has been thought to be one of suboxidation and partial tissue narcosis. At any rate it emphasizes the dictum: "Motion is life for the arthritic patient" and is one of the reasons why early morning physiotherapy is necessary for many to limber up the joints.

Attention to studies on the physiology of sleep may give a clue to the cause of increased pain in the early morning. During sleep there are reductions in basal metabolism, alterations in vasomotor tone, and reduction in blood pressure, all considered potential factors in changing the sensory phenomena of inflamed joints. It may be that the biologic variations which occur during sleep, as part of the cycle of day and night, are, to a lesser degree perhaps, the same as the majority of those attending the monthly cycle in women, which is attended by menstrual arthritic exacerbations."

The *skin* is noteworthy in the examination of any patient but particularly so in the patient with arthritis. In the ambulatory patient with chronic arthritis the skin may be shiny and dry over the affected joints. Such a condition usually obtains when the bony changes are atrophic. The skin over the joints may be puffy or tight if the joint is decidedly enlarged. Measurement of such joints may reveal enlargement over the normal circumference in the individual. If the treatment produces favorable results the size of the joint may decrease perceptibly.

All the deviation from the optimum in posture should be noted, carriage of shoulders, stooping of shoulders, degree of straightness of the back, tipping of the pelvis, knock knees, and flat feet. Skeletal abnormalities in general as with flat feet cannot be assigned as the cause of arthritis but thru proper handling and correction may assist in the management of the patient and the prevention of discomfort.

So much for inspection. The physical examination is now carefully done with special reference to the foci of infection, tuberculosis and syphilis.

The foci of infection most often mentioned are the two with which the layman is most familiar, the teeth and the tonsils.

"A chain is no stronger than its weakest link." At this point the clinician must have a competent dentist. Abscessed teeth, devitalized teeth, buried tooth roots, extensive pyorrhea with actual infection of the bone must be demonstrated non-existent. We are all familiar with the chances of error in dental X-rays and their diagnosis; likewise we are all prone to accept a more or less routine dental report. My standard at present is a report from a dentist of unquestioned thoroughness and ability whose verdict is based upon careful personal examination of teeth and gums plus a full mouth X-ray. I find dentists inclined to X-ray carefully and in many cases to re-X-ray. I do not allow a devitalized tooth to remain no matter how innocent it may appear in the film.

The teeth settled attention in the head is directed to the sinuses and the mastoid cells.

The septic tonsils, the suspected tonsils, in fact tonsils of any sort are removed. Remnants of tonsils, lingual tonsils, pieces of tonsils held down by scar tissue are removed.

The chest in the form of chronic bronchitis or bronchiectasis may be a focus. If I find such trouble in the chest I have the nose and throat man check the sinuses again. There is a connection between sinuses and chronic non-specific lung infection.

The abdomen has its gall bladder, appendix, and lower bowel infections. The genito urinary system has its fallopian tubes, uterus and cervix or its vesicles and prostate gland. All must be investigated and in many cases reinvestigated.

Students of arthritis are agreed that certain characteristic changes in the joint tissues do occur. Osler concludes that so called rheumatoid or proliferative arthritis and osteoarthritis or degenerative arthritis are different manifestations of the same disease. Certainly atrophic and hypertropic changes are observed in the X-ray findings of a single joint. The joint changes in rheumatoid arthritis are characterized by their vascular nature including round cell infiltration as the result of stagnation produced by the constriction of arterioles and the dilation of capillaries. In osteoarthritis degenerative changes in the cartilage are the initial ones and are followed by marginal proliferation of cartilage cells and bony change. Round cell invasion of the tissues is not marked.

Experimental studies of the causative organisms have yielded divergent results. Competent men have reported their ability to secure positive blood cultures. Other men have reported that they are unable to do so.

Harry N. Margolis and Anna H. E. Dorsey of the Mayo Foundation report as follows:

"On analysis of our data, it does not seem surprising that positive cultures are obtained with such relative infrequency. As we have indicated, the average duration of the symptoms in the cases of arthritis was a matter of many years. The operations were usually performed to correct the result of ankylosis. In all cases, absolute quiescence of the process was assumed before they were deemed suitable for such operations. Even those patients who presented hydrops of the joints had usually had the effusion for a period of months before coming to operation. It would seem, then, that the organisms we obtained were only those which retained their viability despite the natural reparative processes which had been exerted by their affected tissues over periods of months or years.

It is clear that the absence of bacteria in cultures of arthritic tissues, at the time when such material becomes available to us for study, cannot be construed as proof of the non-infectious nature of the disease. On the other hand, the finding of positive cultures, even in a small percentage of cases, is strongly suggestive of its infectious etiology. It is unfortunate that circumstances do not permit of bacteriologic cultures of arthritic tissues, particularly of the epiphyseal marrow, during the early, active stages of the disease.

Of the bacteria that have been isolated from tissues in chronic arthritis, the non-hemolytic (green-producing and indifferent) streptococci have been shown to play the most prominent part. In the absence of final proof of the etiologic relationship of any of the organisms that have been reported, we must conclude tentatively that various types of bacteria may be causative in chronic arthritis. That the apparent similarity of pathologic pictures must not imply bacteriologic unity of the etiologic agent is based on fact.

The predominance of the streptococci among our positive cultures, and among those reported by others, indicates that these organisms probably are of first importance from an etiologic standpoint in chronic infectious arthritis.

Crowe contends that staphylococcus albus is the primary cause in rheumatoid arthritis and that the streptococci produces osteoarthritis.

I have seen no convincing evidence of allergy in a basic relationship to arthritis. Suprisingly quick and good results with non-specific protein therapy are so interpreted by some writers. Ralph Pemberton quotes Zinnser as follows. "Rheumatic fever is an allergic condition in which the body is sensitized to a bacterial antigen. It is the only explanation consistent with the varieties of bacteria isolated and with the frequency with which such factors as exposure seems to precipitate the attack."

He also says: "There remains in chronic arthritis, following the removal of even causative infections, a more or less chronic dislocation of physiology which may persist a long time or even permanently. One may almost say once an arthritic, always potentially an arthritic."

Ernest E. Irons (Chicago) has discussed arthritis in connection with foreign protein and vaccine therapy. He says: "In the patient with chronic arthritis there are usually more than one and often several factors contributing to his pain, deformity and disability. The chronic feature of the arthritis may be due to the recurrence of acute exacerbations. Such cases are often associated with chronic local infections and constitute the group of chronic arthritis which affords examples of relief by the eradication of infection."

"The arthritis may be of the atrophic type with swelling and later loss of cartilage and atrophy of muscles, or of the hypertrophic type with proliferation of joint margins and but little muscular atrophy. While infection is believed by some to be one of the chief factors responsible for the former of these two, in both groups other factors, including heredity, poor nutrition, metabolic disturbances, impaired local blood supply, and trauma resulting from hard work and from bearing increased weight, to mention but a few, play a large part in the production and progress of joint disease and disability. Pain may result from mechanical causes as in hypertrophic or osteoarthritis and may subside spontaneously."

"The permanent relief of pain and disability in chronic arthritis in which etiology is varied in which the course is characterized by spontaneous remissions and exacerbations at intervals of months seems unlikely to result from the use of one remedy, such as foreign protein injections or vaccines; and when improvement occurs following treatment, it seems necessary to reserve some credit for other possible factors."

"The evident difficulty of supplying a comparable control series does not justify clinical conclusions drawn from uncontrolled observations."

"In still other disease groups treated by vaccines or milk injections, one function of the treatment seems to be that of a sort of "occupational therapy" in which patient and physician participate, whiling away the time until the natural forces of healing bring about recovery."

The treatment of patients with arthritis is beset by many bugbears. The problem is often one of treatment in the absence of a known cause. If one organism were always demonstrably present we might have a specific serum. If one, or even one of a dozen foci were always the one cause its removal might at least promise improvement. If we could be certain that the basic cause were allergic we might use non-specific protein therapy with great confidence. None of the preceding hypotheses being true we must use empirical methods.

The application of even a fraction of the methods of therapy would require more years than the average arthritic patient expects to live and surely longer than he will be willing to wait for the cure.

Somewhat in the order in which I have found them effective are: (1) Removal of foci of infection; (2) Shock treatment using typhoid vaccine intravenously and aolan intramuscularly; (3) General building up process based on adequate rest, sunshine, and good general diet; (4) Physiotherapy—consisting chiefly of persistent application of heat by various means such as the infra red light baking cabinets, electric pads; (5) Sodium iodide intravenously and by mouth; (6) Monoiodocincophen; (7) Calcium ortho-iodoxybenzoate by mouth, Ammonium ortho-iodoxy-benzoate intravenously.

POSTVACCINAL MYELITIS

Thomas William Brockbank, Washington, D. C. (Journal A. M. A., July 25, 1931), calls attention to the fact that the acute inflammatory lesions of the nervous system reported as occasionally following vaccination against smallpox usually have presented the clinical symptoms of encephalitis or poliencephalitis. In cases with paramount spinal cord involvement, even when the lesions accompany smallpox itself, the sensory impairment has been negligible or transient. As a contrast to this generally accepted picture, he reports a case of postvaccinal myelitis with complete spinal anesthesia persisting up to the level of the ninth dorsal segment and paralysis. The clinical and laboratory signs of spinal meningomyelitis are presented. The sensory level seemed to indicate that the inflammation in the acute stage and progressed only to the level of the fifth dorsal segment, although motor signs pointed to mild inflammatory involvement in segments considerably higher. The sensory level two months after onset was in the eighth dorsal segment. The prodromal symptoms began on the thirteenth day after vaccination.

HOW TO CORRECT DIARRHEA

After a starvation period of twelve to twenty-four hours on boiled water or gelatin water (½ oz. of gelatin to one pint of boiled water), the infant should be given Protein S. M. A. (Acidulated) diluted 4 level tablespoons with 9 ounces of water, and without any additional carbohydrate.

	1st Day	2nd Day	3rd Day
Severe cases	3 oz.	6 oz.	9 oz. (*)
Medium cases	10 "	15 "	20 "
Mild cases	15 "	30 "	

(*) Until the proper amount for their age and condition is reached, which is 200 c. c. per kilo of body weight per twenty-four hours, or three ounces per pound of body weight per twenty-four hours. However, the total twenty-four hour intake need not go above thirty-two to thirty-five oz. or 960 to 1050 c. c.

After 48 hours or when the stools become normal, SMACO (400) Maltose and Dextrins (Spray Dried) should be added gradually, beginning with one oz. to the quart, and increasing until the infant is gaining steadily in weight. In certain cases, it may be necessary to increase the carbohydrate to a total of 12 to 15% (3 to 4 oz. of carbohydrate to the quart).

THE TREATMENT OF FRACTURES BY SKELETAL TRACTION

S. R. CUNNINGHAM, M.D., F.A.C.S.
OKLAHOMA CITY

In the short time allotted for this clinic, I shall attempt to demonstrate the peculiar adaptability of skeletal traction for fractures of long bones. It will be shown that a large percent of fractures of bones with a shaft are associated with open wounds or burns of the soft parts, making it impossible to use plaster of paris casts, or to use skin traction.

At noon today, Doctor Henderson and I were asked "Why do you stress treatment of fractures so prominently on your program, and why do you rely so much on the X-ray in the care of fractures?" The doctor went on to say that he thought very careful physical examination should be taught and practiced in the care of fractures.

I agree with him in part, but certainly we can't neglect the careful and wise use of the X-ray in treating fractures. Carelessness in physical examination often results in unrecognized associated nerve or blood vessel injury. It is not uncommon to find pathologic fractures resulting from metastasized malignancies or from benign bone cysts.

We believe certain types of fractures can be better treated than heretofore.

We believe there has been too much useless and too much complicated apparatus used, and some have resorted too much to open surgery.

There has been a rapid increase in the number of fractures, and at the same time a great change has come in the severity of fractures. The public also is demanding better treatment and better results than has heretofore been afforded. Thirty years ago in a city of 200,000 population we did not see as many fractures from all causes as we now see in a city of similar size resulting directly and indirectly from motor cars. We have observed, also, that motor cars, modern heavy construction and oil field work cause much more severe and complicated fractures than we had to deal with a few years back.

Only a few years ago we seldom saw fractures of the spine, central fractures of the hip, or fracture dislocations of the ilium, and now none of these fractures are uncommon.

Certain individuals doing much fracture work have perfected mechanical devices which they use well and with which they secure results satisfactory to them. Others doing like work have perfected an open method and they therefore are apt to infer that only the unskilled surgeon uses mechanical methods.

I do open replacement of fragments under certain circumstances, but never leave any form of non-absorbable material.

At a meeting of railway surgeons within the last year, I heard a good surgeon discuss as follows:

"I am in favor of plaster of paris as a fixation method of all fractures. The main defect with other forms of traction is that you must employ about six nurses to watch your frames, to keep your traction on, and to keep the weights adjusted. If we put a case up in plaster of paris we know exactly where we have our fracture and that it is going to stay right there." I am glad he can do that. Another stated:

"In certain cases open operation is absolutely in demand. Those who do open operations are impressed with the fact that a frequent cause of non-union is tissue interposed between the ends of the fragments whether skeletal traction or plaster of paris has been used, in which event open operation *must* be done, and I can see no more danger than in operating on the brain or operating in the abdominal cavity."

I can't agree with either one of them. I think they are both partly right. I have chosen today to demonstrate a method that we use in cases where neither skin traction, plaster of paris casts nor open replacement of fragments is advisable.

There are a few cardinal principles in the treatment of fractures and one must select the best adaptable method for each fracture.

It possibly would be well here to give the percentages of certain types of acute fractures coming under our observation. Of two thousand consecutive fractures of bones of the shaft seen since January 1, 1928, nine per cent were fractures of the femur, 16 per cent of which were open fractures; seven per cent were fractures of the humerus, eight per cent of which were open fractures; 11.5 percent were fractures of the radius, eight percent of which were open fractures; 8.5 percent were fractures of the phalanges of

the fingers, seventeen per cent of which were open fractures; thirteen per cent were fractures of the metacarpals, twelve per cent of which were open fractures: and eleven per cent of all fractures were of the tibia, fourteen per cent of which were open fractures.

In civil life 11.85 per cent of all fractures of bones of the shaft are open fractures and many of them are best treated by skeletal traction.

The treatment of fractures by skeletal traction is not new. While Dean and Professor of Surgery at the Medical College of Indiana thirty-five years ago, Dr. Joseph G. Marsee practiced and taught the use of skeletal traction in fractures of bones of the shaft.

In 1909 in a paper entitled "Common Injuries of the Hand" I described practically the same method we now use for fractures of the metacarpals, metatarsals and phalanges.

The various forms of extension tongs have been very efficacious and their use has not deserved the unfavorable criticism it has provoked.

I think we have found that the small steel wire drill with suitable spreader to hold wire and prevent bending offers advantages over other methods of skeletal traction.

The Kirschner drill (hand or motor driven) and pins (furnished in this country by V. Mueller & Company, Chicago) are simple of use and applicable to all fractures of long bones.

(The author demonstrated by numerous slides the varied uses of skeletal traction.)

—o—

CHRONIC SYPHILITIC (?) GASTRITIS WITH TOTAL GASTRECTOMY AND PERNICIOUS ANEMIA

Allan K. Poole and Lewis C. Foster, New Haven, Conn. (Journal A. M. A., June 27, 1931), report a case of chronic gastritis, probably syphilitic, in which the patient has lived five years after a total gastrectomy with the development of pernicious anemia about three years after the operation. The response to intravenous liver extract was immediate and quite striking. Desiccated hog stomach was later used instead of liver and appeared quite adequate in maintaining the blood count and the patient's general well being.

RATIONALE OF VACCINE THERAPY IN CHRONIC INFECTIOUS ARTHRITIS

E. GOLDFAIN, M.D.
OKLAHOMA CITY

Within the last number of years, a great deal of bacteriological research work has been done by various workers in the field of chronic arthritis. They have concerned themselves with the endeavor to isolate some specific organism, if possible, which acts as the etiologic factor in the causation of arthtitis. Outstanding amongst these workers may be mentioned Dr. Reginald Burbank, Dr. L. J. Hadjapoulis, Dr. R. L. Cecil, Dr. Ralph Pemberton, Dr. James C. Small and a host of others. Of course, in their efforts they have also kept in mind the application of this knowledge in a practical way; that is, how best they might utilize information thus obtained in the treatment of affected patients. For it boots but very little to do work of this kind if same cannot in the end point toward a more rational and logical attack upon the diseased condition.

I wish to lay before you the work done by the various investigators and show how their studies may be applied in the treatment of arthritis, possibly, to compare these in an impartial manner, and come to some opinion as to whether or not the different methods of approach of these workers do not at botton seem to be more or less similiar; that they are really utilizing one and the same idea in their therapeutic attack upon this diseased state, with the exception that their technique is somewhat different.

First, we will set forth the complement fixation test of Dr. Burbank. In this test, Dr. Burbank applies the principles that are used in the Wassermann test in identifying organisms that may be causing a chronic infectious state in the patient. This test is as follows: The blood of the patient is drawn as for Wassermann test. The serum is separated from the clot in the tube, which has been standing at room temperature overnight. Test tubes are set up, one for each type of antigen that is to be tested. Control tubes are set up in order to test whether or not the patient's serum may happen to be anti-complementary. To the four control tubes is added .01 .02, .04 and .06 cc. of serum. Saline solution 0.5 cc. is added to each of the control tubes. To the tubes that are for the fix-

ation test on the patient's serum, there is added 0.04 cc. of patient's serum and 0.5 cc. of the antigen. The tubes are put in a water bath for thirty to forty-five minutes at 37 degrees centigrade. They are then removed and to both control tubes and the special tubes is added 0.5 cc. of ½ per cent sheep cell suspension containing anti-sheep hemolysin. These tubes are then incubated and watched until the control tubes are hemolyzed. When such has occurred, the tubes are removed and readings are taken as to whether they are one, two, three or four plus positive to the bacterial antigen. This gives us information as to the type of organism that is causing the disturbance in the patient. We can then make a vaccine of such organism and administer same to the patient in proper dosage.

Dr. Cecil has isolated an attenuated hemolytic streptococcus which he thinks is the causative organism in chronic infectious arthritis. He, therefore, tests his patients by the agglutination method. Ten tubes are set up. To the first tube 0.9 cc. of saline or clear broth is added. To the other nine tubes ½ cc. saline is added. To the first tube is added 0.1 cc. of the patient's serum. This is well mixed with a pipette and 0.5 cc. from the first tube transferred to the second tube, well mixed. 0.5 cc. is thus carried from the preceding tube to the succeeding tube, except the last one which does not receive any patient's serum. It is the control tube. 0.5 cc. antigen is then added to each tube. The antigen is a twenty-four hour broth culture of this specific attenuated hemolytic streptococcus. This, therefore, gives dilutions of the patient's serum, varying from one to twenty in the first tube, to one to 5120 in the ninth tube, the tenth being control, and not containing any serum The tubes are shaken and put in a water bath at 56 degrees centigrade for two hours. From the water bath they are put into the ice box overnight. They are read the next morning.

Dr. James C. Small has isolated what is known as an indifferent streptococcus, which he has found to be present in rheumatic fever and in various cases of infectious arthritis. He has found that these organisms produce both antitoxins and by extraction antigenic substances. He feels that the reason for a patient reacting as he does in chronic infectious arthritis may be due to extreme sensitization to these organisms, developed over a long period of time. He, therefore, makes an antigen, which is a saline extract of these organisms, and this antigen is diluted in some cases to ten to-16 power. For instance, if the antigen is the saline extract of a dilution of his organisms of one to one-million, that is considered to be as ten to the -6 power. Then as this is increased to ten million, it is ten to the -7 power, and so on until sixteen cipher dilution is reached. Of this last dilution, he will start with 0.05 cc., giving as is evident from the above discussion an almost ridiculously small injection. Yet if this dosage is increased too quickly or in the extremely hypersensitive case, a reaction from such dosage may be secured, showing that whatever is there is extremely potent.

Dr. Touart of the French Hospital tests his patients with organisms isolated from the various parts of the body, such as the teeth, throat, tonsils, but most especially the stools. The autogenous organism is centrifuged and one part of that is added to ninety-nine parts of one quarter per cent tricresol saline solution. Of this, one per cent dilution, 0.01 cc. is injected intradermally. A saline control of the same amount is injected at a small distance away. Other control strains of organisms similar to the organism that has been isolated are also injected in the same amount in order to control the reactions obtained from the autogenous organism. For example, if a streptococcus hemolyticus has been obtained from the patient, a control strain streptococcus is also used. The formation of a wheal is noted in fifteen minutes. The patient is then requested to return in forty-eight hours for a final check up, at which time, these tests are observed and records made as to whether an areola, wheal, tenderness or ecchymosis is present. If the reaction is positive, the patient is then treated with that particular organism in the form of a vaccine.

If we glance back at the above resume of the methods for diagnoses bacteriologically of these various investigators, we are immediately struck by the fact that they, all leaders in their work, are apparently of one and the same opinion: that infectious arthritis is, as the same implies, caused by an organism, most likely of the streptococcus family.

Dr. Burbank, based upon his complement fixation and autogenous cultures, places his main reliance on vaccine therapy. He gives his vaccine in very small

doses, apparently feeling that the effect of the vaccine is due to other causes than the bacterial body instigating antibodies against itself when injected subcutaneously.

Dr. Cecil also gives vaccines in small doses, sometimes ranging as low as fifty thousand, intravenously, made from his specific attenuated hemolytic streptococcus.

Dr. Touart, in his skin testing work, also seems to follow the same principle, in that he uses vaccines in very small amounts for treatment of his arthritis patients. The vaccine is made of the same organism that the patient has reacted to with a positive skin test.

Dr. Small apparently carries this idea even farther and instead of giving any bacterial bodies to the patient, simply uses in his treatment a saline extract of his streptococcus cardio-arthritides which does not contain any of the bacterial cells but does contain highly powerful substances apparently attached to the bacterial cells and to which the patient has become sensitized. By using this antigen in very minute doses, he desensitizes the patient. By so doing, he seems to secure a remission of the active process.

It seems to us then, in conclusion, that the reason vaccine therapy in the past has not been as successful as it should be in arthritis may be due to three reasons. First, by heating the bacteria to 56 degrees centigrade for a sufficient period of time to inactivate them, some of these antigenic bodies, or a great portion of them may be destroyed. Secondly, the proteins are coagulated and altered in their structure by heating, and the patient is not being immunized against the type of organic substances to which he has become sensitive, and which is causing his diseased state. The third and more important consideration is that apparently we have, in the past, been overdosing our patients, so that their ability to develop immunity to these unknown antigenic substances has been overwhelmed. Instead of improving, they seemingly came to a standstill or even received injury from such overdose.

The lesson, therefore, that we learn from this review is that first: before we treat the patient with arthritis, we should have some idea as to the particular type of organism that has invaded the host repeatedly over a long period of time and has established a sensitization in the host to itself. This being done, we feel that vaccine therapy is properly fundamental in the treatment of the arthritic. However, the vaccine that is prepared, should never be inactivated by heating. Instead, the organism should be rendered non-viable, through being treated with ¼ to ½ per cent phenol in saline solution. The vaccine is then given in very small doses, the size of the dose depending upon whether the patient reacts to it. If he does react, the dose should not be increased but kept at that point until further reaction of a focal nature is not secured, then it should be slowly increased. Always avoid undue focal or general reaction. If a general reaction is secured, the dose should be markedly reduced. Doses should be given every four to seven days.

I wish, however, to sound this word of caution at this time. When I say that vaccine therapy is to be the foundation of treatment of arthritis, I do not mean to imply that other measures are not to be taken in order to help the patient to as complete and thorough a convalescense as possible The other measures would consist of physio-therapy, tonics, expecially in the form of arsenic and iodides and cod-liver oil, elimination of foci of infection and the correction of any and all additional diseased states or disordered physiology that may be present.

—o—

TREATMENT OF UNDULANT FEVER WITH AUTOGENOUS ANTIGEN

G. S. Shilling, C. F. Magee and F. M. Leitch, Moscow, Idaho (Journal A. M. A., June 6, 1931), report a case of undulant fever in which the Hektoen phenomenon of a positive typhoid agglutination appeared and served to obscure temporarily the proper diagnosis. The etiologic agent was isolated both by blood culture and by culture of the feces, and was identified as Brucella suis (Traum). A method of preparing a highly concentrated, relatively soluble, autogenous antigen is described. This antigen on intramuscular injection caused a complete and permanent subsidence of the infection in forty-eight hours.

—o—

DIABETIC LIPEMIA RETINALIS

Lillian A. Chase, Regina, Sask. (Journal A. M. A., July 18, 1931), describes the thirty-seventh case of diabetic lipemia retinalis. The condition cleared up in seven days on insulin. Thirty-seven analyses of the blood for total lipids, total fatty acids and cholesterol were made. The blood lipids became normal in thirty-six days; the total lipids and total fatty acids dropped rapidly; the cholesterol dropped slowly and showed fewer daily fluctuations. The patient is now, one year later, 52 pounds (23.6 Kg.) heavier than on admission, and is sugar free on 20 units of insulin daily.

ARTHRITIS

W. P. FITE, M.D.
MUSKOGEE

Interest in arthritis has been greatly increased in the past five or six years, particularly in the last two. The book by Ely, about 1926, did much to clarify the subject of classification of this protean disease. In 1928, at a meeting of the American Committee on Rheumatism in Philadelphia, for purposes of classification, chronic arthritis was divided into two main types, the atrophic and hypertrophic. The atrophic type includes the various forms of acute and specific arthritidis. The most difficult of classification are the non-specific types. Those who are familiar with the various manifestations of this form of the disease have considerable trouble at times in determining that it truly falls in this type. It is characterized by a certain amount of diminution of joint space and as a whole tends to ankylosis and there is occasionally a confusing exostosis of a minor nature about the borders of the joints in long standing cases. These joints often tend to a villous arthritis. Occasionally through spaces on the joint surface there is erosion of cartilage and there are granulating areas and a sharpening of the usual rounded contours about the borders of the joint. It may be a continuous condition associated with considerable discomfort, even with temperature. There may be periods of complete remission of symptoms in joints that have occasionally become quite disabling for weeks at a time. Indeed, these joints often in the interim between attacks show no arthritic changes demonstrable through the X-ray or physical examination and are symptom free. The specific forms of arthritis that might rightfully be classed in this group are tuberculous, gonorrheal, syphilitic, staphylococca (septic), pneumococcic, and typhoid. Rheumatic fever, the arthritis that is sometimes but rarely associated with amebic colitis, that associated with chronic ulcerative colitis, and certain skin diseases (psoriasis) might also fall in this class. The so-called allergic joints, the fibroses around joints, lumbago and neuritides might rightfully be considered by analogy to belong to this same group. The usual non-specific atrophic arthritis is a disease seen almost entirely in the first three decades of life, or before middle age.

The second great group of arthritis, the hypertrophic form, which generally comes on at middle age or after, is characterized by loss of cartilage on the joint surface, by eburnation of the bone in these areas, and tends to the formation of exostoses about the borders of the joint and is seen most typically in the lower spine, knees, and in the distal phalangeal joints, giving rise to the so-called Heberden's nodes in the last. It is likely to occur in the knees of heavy individuals after middle life, in combination with the static arthritis of obesity.

Traumatic arthritis, which can arise either from trauma from without or from intrinsic trauma due to posture, may arise at most any age but usually does not occur until toward or after middle life and is usually a reaction on the part of the joint to a series of chronic traumata induced by derangement of joint mechanics or poor posture.

Gouty arthritis, which is characterized by remissions and in the chronic form with some deformity, and with tophi in the ears is given little consideration other than mention in this discussion, as are also the arthropathies secondary to lesions of the central nervous system, syringo-myelia and tabes, producing so-called Charcot's joints and pulmonary osteoarthropathy which is secondary to certain chronic lung and cardiac conditions.

At least 70% of non-specific atrophic arthritides have an infectious basis. The other 30%, according to a recent estimation, might be classed as non-infectious allergic joints. Recent work tends to show that the streptococcus cardioarthritidis in one of its forms is responsible for the 70% of atrophic arthritis and that the allergic joints result from an allergic reaction in joints that have been made previously sensitive by infection which has produced no arthritic reaction.

The specific arthritides, tuberculosis, syphilitic and gonorrheal, are easily recognized. The others, largely by the foregoing history. Some interesting deductions have recently been brought out concerning gonorrheal rheumatism which indicate that it at least may have an allergic basis. In other words, that unless that individual has been made sensitive by some form of previous infection, he will escape his gonorrheal rheumatism.

The forms of drugs that have been used in the treatment of arthritis are multiple.

The commoner forms now in use are (1) the salicylates, (2) cinchophen. These two have little if any effect upon the arthritides other than that of lessening pain. (3) Amiodoxyl benzoate has been used quite extensively in the last few years with the idea that it raised the oxidation about the joints. Rather extensive personal use of this drug is not very encouraging. It seems to give some relief in acute exacerbations but these conditions also tend to subside with rest and physio-therapy which was used as an adjunct. (4) Autogenous vaccines, if properly made from the specific organism causing the arthritis seem to have very beneficial effects. Those who have used this method of treatment extensively are enthusiastic about it. Specificity of the organism is discovered by culture from the joint, or from the suspected focal region. Tests of agglutination and of animal inoculation are aids in determining the specificity. (5) Emetine is used in those rare cases where the toxins of entameba histolytica are responsible for the arthritis. (Ely tends to the hypothesis that the hypertrophic arthritides are quite likely caused by some protozoal infection in the intestional tract). (6) Thyroid extract is beneficial in some forms associated with hyperthyroidism as is thyroidectomy responsible for the relief in some cases associated with hyperthyroidism. (7) Ovarian extract would seem to be indicated and is used in those forms of arthritis arising at or after menopause. (8) Vitamins especially vitamin B, associated with limitation of carbohydrate intake and increase in the protein intake, have proved of marked benefit in many cases of atrophic arthritis. (9) Non-specific protein (milk) and typhoid bacilli are being used extensively in the treatment, often with beneficial results.

In addition to drugs and biological preparations as enumerated, ganglionectomy both in the thoracic and lumbar regions has been practiced for the past five years in certain selected cases of atrophic arthritis of a progressive type meeting certain circulatory conditions. It has been noted that in arthritics there is often a circulation deficiency about the joints and a relatively low basal metabolic rate. Consequently anything that will better the general condition of the patient and his general circulation, will tend to benefit these cases. With ganglionectomy a permanent dilation of the arteries in the extremity is obtained and this in time leads to a moderate and sometimes marked relief of arthritic symptoms in properly selected cases.

In our handling of many hundreds of these cases in the past seven years, we have resorted chiefly to the eradication of the focal infection, rest of the affected joint and physiotherapy in the form of heat, and in a fair percentage non-specific protein therapy or autogenous vaccines. The results in the acute forms are often quite striking and even in the chronic recurrent forms the relief is marked. The marked tendency to recurrence has been noted. Certain forms go on to deformities and ankylosis in spite of anything we can do. It has been noted that the same individual may be readmitted for arthritis time and time again with very little if any but his subjective symptoms to make diagnosis upon. After a period of rest and treatment the acute symptoms subside and he can go back to his former occupation. There are others that have practically the same physical findings, that are never free of their symptoms and are continuously incapacitated from the usual forms of manual labor.

With a hypertrophic arthritis we have been able to do very little. Relief of bone changes can not be expected and as repeated study of these cases has shown that they are always of a non-infectious type, never giving positive cultures from the joint fluid, little is to be expected from protein therapy, autogenous vaccines and so forth. They are often given considerable relief by rest and heat. We encourage these cases after their acute exacerbations have subsided, to resume their activities as best they can, as they seem to do best when managed in this manner and the tendency to ankylosis is greatly lessened. It is remarkable the amount of hyperarthritic change there may be about the joint and yet very little dimunition in the function of the joint.

The treatment of specific arthritidis is directed toward the specific form present and along perfectly conventional lines. No recent advance in the treatment of these has been noted or used.

HEMOPHILIA AND FEMALE SEX HORMONE

Carroll LaFleur Birch, Chicago (Journal A. M. A., July 25, 1931), tested the urine of five hemophilic persons for the female sex hormone. From his observations he concludes that the urine of patients with severe hemophilia is deficient in the female sex hormone.

OPERATIVE TREATMENT OF UNREDUCED DISLOCATED ELBOW

D. H. O'DONOGHUE, M. D.
Orthopaedic Department Oklahoma School of Medicine.
OKLAHOMA CITY

While by far the greater percentage of deformities of the elbow joint consists of poorly replaced supracondylar fractures and are thus amenable to correction by the ordinary method of osteotomy, there is a certain percentage of cases which come to any large clinic for treatment which owe their disability to a complete loss of integrity of the elbow joint. Such cases are the result of unreduced dislocations at the elbow joint.

Since the deformity of a dislocated elbow, especially of the posterior type, is very evident, it is readily understandable that a very small group of the total number of dislocations remains unreduced. When this occurs, however, time is an all important factor since the difficulty of reduction increases rapidly with each day of neglect. After so short a time as two weeks it will as a rule become impossible to carry out reduction by any closed method. Any forced manipulation is likely to cause traumatization of the surrounding tissues without accomplishing the desired result.

In the case of unreduced dislocation of the humerus over the coronoid of the ulna the forearm is of necessity somewhat extended by the pull of the triceps tendon since the leverage of this tendon is vastly increased by the displacement of its fulcrum, the lower end of the humerus, forward. This leaves the joint with a small range of motion which is through an arc entirely beyond a right angle. For this reason disability of the extremity is out of proportion to the limitation of motion, since useful motion at the elbow joint is largely through a range within a right angle. As healing occurs in the new position the olecranon fossa and much of the space between the tendon and the humerus fills with scar tissue, obviously preventing replacement of the trochleas of the humerus into the olecranon fossa of the ulna.

The problem at operation is to reduce the deformity and at the same time to preserve some motion in the elbow joint which will represent the maximum function, *namely*, short of a right angle. A few degrees of motion from 60 to 120 degrees is of vast importance from the standpoint of function. Very little disability results if this range is preserved. While a similiar range from 120 to 180 degrees is little better than a rigid elbow. A rigid elbow at 80 degrees presents more function than one whose range is from 120 degrees to complete extension.

In many cases there will be an associated fracture of one or both condyles as in the case to be reported, but this becomes purely incidental as the dysfunction is caused by the dislocation itself.

Dr. J. S. Speed of Memphis, Tennessee, has described an operation which seems to satisfy all the necessary requirements. *Namely*: (1) Replace the dislocation, (2) preserve the joint surface, (3) relieve the contracture of the triceps tendon, (4) preserve some useful motion in the joint with 90 degrees as the center of its arc.

I quote Dr. Speed's description of his operation. "An incision is made over the posterior surface of the elbow, beginning in the mid-line about four inches above the tip of the olecranon and extending down to just above the tip of the olecranon, where it turns slightly outward over the center of the external condyle of the humerus and the head of the radius for about two inches on the forearm. Skin flaps are dissected back, completely exposing the tendinous insertion of the triceps muscle and the posterior surface of the elbow joint. The ulnar nerve is next located, dissected up from its bed along the groove in the internal condyle and retracted out of danger. Beginning at its upper end, the tendon of the triceps muscle is dissected out and turned down leaving it attached to the olecranon. An incision is next made directly in mid-line, through the fibres of the triceps muscles down to the humerus, extending from three inches up on the shaft down to the reflexion of the joint capsule around the articular surfaces. Subperiosteally, all of the muscular attachments over the lower end of the humerus, both anteriorly and posteriorly, are stripped free with a periosteal elevator. When the attachment of the joint capsule around the condyles of the humerus is reached it is necessary to divide this with the knife or scissors. Some difficulty may be encountered in freeing the tissues around the internal condyles and along the anterior surface of the humerus just

above the joint, but it is essential that they all be loosened and the lower end of the humerus be completely mobilized. This difficulty will be greatly lessened if the incision has previously been extended down over the radius, exposing the head and a small portion of the shaft. There is often considerable callus formed over the posterior surface of the humerus around the olecranon fossa, due to stripping up of the periosteum at the original injury. This callus with the scar tissue in the olecranon fossa and incisura semilunaris is next thoroughly removed.

"Having completely mobilized the lower end of the humerus and exposed the capitellum and head of the radius, the first step in the reduction is now made. By simply twisting the forearm with gentle pressure over the capitellum, the head of the radius is made to glide forward over the capitellum into the normal position. If this is not easily accomplished it is a great temptation forcibly to skid the capitellum backward with periosteal elevator. Enough force should not be used to injure the capitellum, as a little more dissection will render force unnecessary. After the radius is reduced it is an easy matter to slip the coronoid process forward over the trochlea and complete the reduction. The joint is then carried through the full range of motion to ascertain that there is no obstruction. The periosteum and muscles are next closed along the posterior surface of the humerus, the fascia closed over the head of the radius and the tendon of the triceps muscle sutured back into its normal position. The arm is placed in a posterior splint with the elbow flexed at right angles.

"The arm is kept in a right angle posterior splint for from seven to ten days, depending upon the amount of operative reaction. Light massage and baking are then started and the splint removed several times a day for a gentle active and passive motion. By the end of the third week, the splint is discarded and exercise is of material benefit. When the dislocation has existed for a long period of time, there is considerable muscular atrophy, and the articular cartilages are roughened and atrophic, hence a long period after treatment is necessary to obtain the best possible function. Children, of course, respond more quickly than adults."

Case Report L. F. Age 16:

W. A. F., admitted to the Crippled Children's Hospital July 5, 1930, complaining of inability to use right arm.

P. I. Eleven months ago patient was thrown from a wagon, lighting on the outstretched arm. Immediately following injury there was marked deformity in the elbow joint. She was taken to a doctor, who attempted to reduce the deformity and applied a splint which was left in place for six weeks. On removal of the splint it was noticed that there was persistent deformity. There has been but little improvement since this time save that pain has largely disappeared. Elbow cannot be flexed and the arm is practically useless.

P. X. General examination essentially negative to left arm. Left elbow shows marked deformity with pronounced posterior displacement of the olecranon, head of the radius is prominent, motion limited to from 135 to 160 degrees. Not painful. Lower end of humerus is palpable in the antecubital fossa. X-ray confirms the diagnosis of old dislocated elbow, also reveals fracture of both condyles with posterior displacement.

Operated, July 12, 1930, after the Speed technique. After careful dissection complete exposure of the elbow joint was made. Both condyles were found to be broken off and carried backward with the radius and ulna. Joint surface of the lower end of the humerus was intact, olecranon fossa filled with dense fibrous scar. Some over production of bone at the anterior aspect of the humerus. Reduction was easily accomplished after thorough dissection. There was no unusual post operative reaction or shock. There was no post operative swelling of the fingers and no evidence of paralysis. After ten days splint was removed and arm baked. A few days later passive motion through a few degrees was begun. This was continued with gradual increase in the range of motion. Active motion was encouraged and developed between the third and fourth weeks post operative. Motion has since been gradually increasing. The present range is from 70 to 110 degrees. Considerable limitation of supination has persisted. With the present range of motion the patient can reach mouth, top of head, back of head, neck, back, and has an extremely useful elbow, even should no further improvement in the range of motion result. Progressive improvement can be expected for as long as six to nine months post

operative. The rapidity of improvement bearing an inverse proportion to the time interval between the dislocation and the reduction.

Lantern slides of X-rays.

Demonstration of case.

DALLAS SOUTHERN CLINICAL SOCIETY NEWS

Throughout the summer, the Executive Committee of the Dallas Southern Clinical Society has held weekly meetings perfecting plans for the society's Fourth Annual Spring Conference to be held in Dallas, March 28 to April 1, 1932, inclusive. Preparations are already far in advance of those for last year. This society, whose sole purpose is to make available to the doctors of the South the post-graduate teaching material of Dallas, has held three notably successful annual meetings which have occasioned much favorable comment. The attendance last year was just short of 1,200, and plans are being made to entertain at least 2,000 in 1932.

Twenty of this country's most distinguished medical teachers have accepted invitations to appear in General Assemblies, Hospital Clinics, and Round Table Luncheons. Ninety-six hours of post-graduate teaching have been arranged in courses in limited groups. Elaborate Scientific and Techinical Exhibits, motion pictures and other attractive features are being planned. The Dallas Southern Clinical Society extends a cordial invitation to all of the doctors of the South and Southwest to be present March 28 to April 1, 1932.

CHILDREN IN DROUGHT AREA

Children in drought area gain 4 to 16 pounds in 8-week clinical test—by drinking Cocomalt, the chocolate flavored food drink.

Some time ago we cooperated with health authorities* in Arkansas in an unusual test. Cocomalt clinics were established in the drought areas and the children placed under the care of an attending physician and registered nurse. The children were given Cocomalt mixed with milk once a day. The average gain for forty days was 8½ pounds per child. One of the most outstanding features of this work was that in thirty children that were checked an increase in hemoglobin from 5 to 15 per cent was indicated.

The splendid results obtained with Cocomalt in Arkansas with only one feeding a day are further evidence of the high nutritive quality of this delicious food drink. Though it provides all the varied nourishment of a well-balanced meal, Cocomalt imposes no digestive burden. It is readily assimilated, quickly metabolized. It contains malt enzymes which actually help to digest the starches of other foods. Cocomalt meets ideally the demand for a high caloric, easily digested food.

More and more doctors are advising Cocomalt in cases of malnutrition; for expectant and nursing mothers; for convalescents and for hyper-nutrition in post-operative cases. Cocomalt is available at grocery stores everywhere in the ½ lb., the pound and the economical 5 lb., family size. High as Cocomalt is in food value the cost is surprisingly low—it is within the means of practically every family.

*The Cocomalt clinics were conducted, and reports rendered, by Dr. A. M. Gibbs, Hamburg, Arkansas, and other county health officers.

Dr. J. C. Miller, Desha County Health Officer, (Desha County, Ark.) writes as follows: "We used Cocomalt with milk and had very satisfactory gains and I believe Cocomalt to be very valuable as a flesh producer."

WHITE HOUSE CONFERENCE MEMBER RATES BREAST MILK BEST FOR INFANTS

"The nearer the milk administered to the artificially fed infant approaches human breast milk in composition and sterility, the nearer the artificially fed infant approaches in its general resistance and condition that of normal nurslings."

This statement written by a member of the White House Conference presents accurately the idea back of S.M.A., an infant food developed at the Babies and Children's Hospital of Cleveland, Ohio. S.M.A. is regarded by many physicians to be the closest approximation to mothers' milk in existence.

It resembles breast milk, having the same percentage composition and in addition, the same buffer value, depression of freezing point, specific gravity, hydrogen ion concentration and caloric value. It is also interesting to note that the fat in S.M.A. has the same character numbers as breast milk fat, such as Polenske, Iodine, Reichert Meissel, Saponification, Melting Point and Refractive Index. Sufficient cod liver oil is incorporated in this fat to make it anti-rachitic.

Like breast milk, S.M.A is used without modification for the normal, full term infant with excelient results in most cases.

The tuberculin tested cow's milk used as a basis for the production of S.M.A. is under the strict supervision of both Cleveland and Chicago Boards of Health.

Special Food for Premature Infants

For premature infants, and to correct diarrhea and malnutrition, Protein S.M.A (Acidulated) is recommended. This is a special form of S.M.A high in protein and low in fat and carbohydrate, with a relatively high acidity. The same anti-rachitic fat is present supplying vitamin "D", and it contains enough lemon juice to make it anti-scorbutic as well.

Develops Non-Allergic Milk.

For infants, children and adults sensitive to milk protein, the S.M.A. Corporation has produced a non-allergic cow's milk, (SMACO 300). Excellent results have been reported.

VITAMINS A AND D AT THEIR BEST

For vitamin A therapy, Mead's Standardized Cod Liver Oil continues to be 4 to 11 times as economical as cod liver oil concentrates. **For vitamin D therapy,** the new reduced price of Mead's Viosterol when prescribed in the original 50 c.c. bottle, makes it less expensive to the patient than Mead's Standardized Cod Liver Oil or any cod liver oil concentrate. Samples on request of Mead Johnson & Co., Evansville, Ind., U. S. A.

THE JOURNAL

OF THE

Oklahoma State Medical Association

Issued Monthly at Muskogee, Oklahoma, under direction of the Council.

VOL. XXIV OCTOBER, 1931. No. 10

DR. CLAUDE A. THOMPSON.....Editor-in-Chief
Memorial Station, Muskogee, Okla.

DR. P. P. NESBITT.....Associate Editor
Medical Arts Building, Tulsa, Okla.

Entered at the Post Office at Muskogee, Oklahoma as second-class mail matter July 28, 1912.

This is the official Journal of the Oklahoma State Medical Association. All communications should be addressed to The Journal of the Oklahoma State Medical Association, Memorial Station, Muskogee, Oklahoma. $4.00 per year; 40c per copy.

The editorial department is not responsible for the opinions expressed in the original articles of contributors.

Reprints of original articles will be supplied at actual cost, provided requests for them is attached to manuscripts or made in sufficient time before publication.

Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Memorial Station, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application.

It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

PRINTED BY HOFFMAN-SPEED PRINTING CO., MUSKOGEE

EDITORIAL

COOPERATION IN SMALL TOWNS

For many years the tendency has been toward grouping of physicians interested in various phases of medical and surgical work into clinics, or organizations. This has been especially true in medium sized cities, where hospitals have either not afforded or been in position to afford the diverse needs of a physician engaged in various types of work. In the larger cities the hospitals are thoroughly equipped with everything the physician may deem he needs to arrive at a diagnosis of his case. But this is not true, as a rule, in the smaller localities and in sparsely settled counties.

It has long occurred to the writer that the only obstacle to improving and getting rid of this impossible situation is for the physicians in any given small locality to get together and formulate a plan by which they may have, at least, most of the smaller necessities incident to quick and correct diagnosis. Many physicians in such isolated localities are remarkably accurate in making clinical diagnosis, and in carrying out indicated treatment. But often the demands are so multifarious that even a good physician has not the time to carry out the necessary technique. It would seem to be a relatively simple matter, and certainly one of no great cost, for the physicians in any small town to provide themselves with an adequate laboratory, in charge of a competent technician, wherein they may secure quick reports as to urinalysis, blood counts, basal metabolic readings, and various bacteriological reports.

Every physician being without the modern necessities of diagnosis will sooner or later fall by the wayside, get into a rut, and fail to render the high type of service modern knowledge demands that he should render his patients.

The facts should be faced squarely and in a judicial manner. There is no question but what the great obstacle lies in petty jealousies and dislikes. This probably prevails throughout the profession. The smart man evidences his shrewdness and high ability by never permitting this to come to the fore and therefore interfering with his work. Every small medical society or small group of physicians in Oklahoma towns should seriously consider the possibilities of improving their personal situation with reference to the diagnostic phases of their work.

Unquestionably their work will become more interesting to the individual and of greater value to the patient if some such plan should be in operation.

MEDICAL PRACTICE LAGGING

We have a medical situation in which the average physician invests heavily and works hard for a modest return; in which the average patient is menaced by medical charges which may ruin him or force him to resort to public charity, and in which

the actual practice of curative and preventive medicine is far behind our accummulated scientific knowledge.

Malaria bobs up with its million cases every year; it can be prevented. In a single year more than 80,000 persons die of tuberculosis and several times as many are ill with it; most of these cases could have been prevented.

We have each year between 30,000 and 100,000 cases of smallpox, we have had 26,000 cases and 5,700 deaths from typhoid fever, 89,000 cases and 8,300 deaths from diphtheria in a single recent year: this illness and these deaths were absolutely unnecessary. Our death rate in childbirth is one of the worst in the world; by the same token we could save the lives of thousands of mothers each year.

Medicine costs too much, its rewards to those who follow it are to small, and it does not achieve all that it ought to. No wonder it has occurred to many observers who are neither revolutionaries nor alarmists that it is time something was done to remedy this situation.

The proposed remedies are numerous. Some of them are good and some of them are bad, and it is not always easy to tell which is which. But I think few informed persons, lay or medical, will question the statement that the existing difficulties are due largely to defective organization or to a lack of organization in medical care. The hopeful element in this crisis is that certain tendencies toward a better organization are already showing themselves.—*R. L. Duffus in Harper's Magazine.*

—o—

FROM THE WOMAN'S AUXILIARY

THE PRESIDENT'S MESSAGE

The reports of the chairmen of the various national committees and of the state presidents indicate unmistakably to the Auxiliary women everywhere that as doctors' wives we have a definite sphere of influence as members of lay women's organizations. As such we may form a strong bond between the medical profession and the lay public.

Because of this possibility we shall make every effort this year to strengthen our organization both in numbers and in quality of work done.

The greatest demand made upon us is for the right kind of source material for health programs, and for health program speakers.

We are attempting to supply this information through a selected packet of literature, assembled by the Bureau of Public Information of the Americal Medical Association; by leaflets on communicable diseases compiled from the best recent medical literature and approved by a member of our advisory committee appointed for that purpose; by the dissemination of leaflets on "Some Contributions of Modern Medicine to the World"; by announcement of the American Medical Association radio broadcasts; and by using our best energies to promote the circulation of Hygeia.

We ask that every doctor's wife read the recommendations concerning Hygeia made to the Woman's Auxiliary by the House of Delegates of the American Medical Association. It is found on page 2116 of the June 20 issue of the Journal of the American Medical Association. Please see that your state and county medical societies also take notice of this recommendation of the House of Delegates.

Many Auxiliaries are doing outstanding constructive philanthropic work such as contributing to a medical benevolence fund, assisting in hospital auxiliary work and establishing medical student loan funds.

We believe that one of the best services we can render to the medical profession is to make our state and national conventions so attractive that great numbers of our women will be enticed to attend and will influence their husbands to come.

The recent meeting in Philadelphia showed that a convention can serve such a purpose. To this end we are already planning to make the convention in New Orleans the best yet if possible and we herewith invite all the doctors' wives to come and bring their husbands.

I hope your press and publicity chairman will let me talk with you again. Always read her reports and those in the bulletin of the American Medical Association. In the bulletin are two pages edited this year, as last, by Mrs. Walter Jackson Freeman, our national president-elect. I commend those pages and these to you and ask your support to make our departments co-operative, useful and successful.

Editorial Notes—Personal and General

DR. J. HUTCHINGS WHITE, Muskogee, has returned from a vacation spent in Wisconsin.

DR. O. E. TEMPLIN, Alva, after summering in the Rockies, returned home in August just in time to contact the surgeon for a gall-bladder operation; after spending about four weeks in the hospital he is again becoming his old great self; that is, he is not as "bilious" as he was.

SOUTHERN OKLAHOMA MEDICAL ASSOCIATION met at the Central Oklahoma State Hospital, Norman, September 8, 1931, with the following program:

Morning, 10:00 A. M.

Group Clinics as follows:

Platoon 1. Functional Psychoses; Dementia praecox, manic depressive, involution melancholia, paranoid conditions.

Platoon 2. Organic Psychoses; Neurosyphilis, encephalitis, chorea, paralysis agitans.

Platoon 3. Convulsive States: Epilepsy, cerebral arteriosclerosis, hysteria, neurosyphilis.

Platoon 4. Exogenous Toxins. Alcoholic, Morphine, barbital group and others.

Noon, 12:00

Cafeteria Luncheon at Veterans' Dining Room. Ladies invited.

Address—Hon. Ben F. Williams, Norman.

Acquired Arterio-venous Communication and Treatment. Dr. Leroy Long, Dean University of Oklahoma School of Medicine, Oklahoma City.

Afternoon, 1:30

Scientific Program on Ward Q.

1. Cancer of the Breast—Dr. R. M. Howard, Oklahoma City.

2. The Spinal Cord—Dr. T. D. Rowland, Shawnee.

3. Report of a Case—Dr. D. G. Willard, Norman.

4. An Appraisal of the More Recent Methods of Treatment in Advanced Pulmonary Tuberculosis—Dr. L. J. Moorman, Oklahoma City. Discussion by Dr. Horace Reed, Oklahoma City.

5. Psychoses With Other Somatic Diseases—Dr. T. M. Boyd, Norman.

6. Clinical Types of Nephritis (pictures)—Dr. Basil Hayes, Oklahoma City.

7. Infection of the Hand (Extension Picture)—Dr. W. T. Mayfield, Norman.

8. Cardiac Pathology (Extension Picture)—Dr. Ben H. Cooley, Norman.

Dr. J. W. Nieweg, reports a very successful meeting.

UROLOGY and SYPHILOLOGY

Edited by Rex Bolend, B.S., M.D
1010 Medical Arts Building, Oklahoma City

Renal Function

Giordanengo and Colombet studied thirty patients (mostly with hypertrophy of the prostate) with regard to renal function, phenolsulphonphthalein and its interrelation with cholesterol and uric acid in the blood. They state that the increase in the elimination of cholesterol is parallel with diminution in that of phenolsulphonphthalein. The authors' conclusions are as follows: 1. The amount of cholesterol may be used as an approximate index of the elimination of phenolsulphonphthalein, taking into consideration, of course, the age of the person. 2. Cholesteramia being an evidence of the liver function, the elimination of phenolsulphonphthalein depends not only on the renal function but also on that of the liver. 3. Therefore in the presence of a poor elimination of phenolsulphonphthalein one should determine the cholesterol content of the blood. One can in this manner determine the preponderating part of the liver or kidney in this deficiency of elimination. 4. No information can be obtained from a determination of the uric acid content of the blood.

Functional Megabladder

Diamantis reports a case of functional megabladder in a child, aged 3. The distention was caused by an obstruction of the prostatic urethra by a small stone that was extracted by the author. The boy made an uneventful recovery. The author's conclusions are as follows: Megabladder is characterized, independently of its origin (congenital or functional), not so much by the overdistention, which may be observed also in prostatic obstruction, but especially and particularly by the lack of contractility of the bladder wall; because of this the distention progresses until it is stopped by external obstacles as the bony wall of the pelvis. This is the reason why in a bladder with a retention of a liter or more and in emaciated persons one observes a bulging of the hypogastric region but cannot delimit the bladder.

Pathogenesis Of Urinary Gravel

Schneider and Codounis observed fifty-two patients with various disorders. The logic examination of the urine and its sediment. Bacterium coli-communis was identified in a pure state twenty-eight times and associated with other bacteria nine times. Among these thirty-seven cases calcium exalate was found twenty-five times, a proportion of 76.55 per cent. Enterococci were identified in a pure state nine times and associated with other bacteria nine times. Among these eighteen cases free uric acid or sodium urate was found twelve times, a proportion of 66.66 per cent. In nine cases crystallization was not demonstrated. In one case bacteria were not found. The actual percentage, after deducting the cases of urines without crystals, was 86.20 per cent of cases in which calcium oxalate was coincident with B. coli-communis and 75 per cent of the cases in which uric acid was coincident with enterococcus. The author's conclusions are as follows: B. coli-communis seems to require the presence of calcium oxalate and a

neutral or even definitely alkaline medium, whereas the enterococcus, which is more common in infected urine than is commonly supposed, seems to prefer a more acid medium with a predominance of crystals of sodium acid urate or of crystals of free uric acid. The staphylococcus occurs rarely in the urine; it is encountered mostly in alkaline urine with a predominance of amorphous phosphates or of crystals of ammoniomagnesium phosphate. The author states that because of inadequate figures they prefer not to draw any definite conclusions concerning urinary lithiasis. It is not well established yet that the latter is always of a bacterial nature. The authors believe that the bacteria themselves are not capable of producing crystals; however, they form some sort of intermediary link in the chain. The authors consider the probability of some ferment, which might be produced by the leukocytes. One of them experimented with purely aseptic urine, free from bacteria and leukocytes, which was inoculated with cultures of different micro-organisms. The crystallization did not occur even after four days. The same was true in experiments performed with sterile urine inoculated with several cultures, to which blood was added to supply the leukocytic element. They call the attention of biologists and especially of clinicians to the fact that in many instances the diagnosis and treatment of urinary gravel will be facilitated if one will determine the kind of bacteria in the urine.

Malignant Tumors of the Bladder

Lewis and Carroll describe (Archives of Physical Therapy, X-ray, Radium, April, 1931,) several cases of bladder carcinoma which they have treated with diathermy.

They state that infiltrating carcinoma of the bladder is best treated by suprapubic exposure and direct application of diathermy. An electrode ranging from the size of a dime to a five cent piece is applied in one area for at least ten minutes and shifted until the entire mass and its closely adjacent tissue are treated. The strength of the current is determined in the heat generated in the tissue. It should be as hot as the gloved finger in the vagina or rectum can endure.

They cite cases which have remained clinically well for from three to five years.

Torsion of the Testicle

Blanc describes (Bordeaux Chirurgical, April, 1931,) a case of torsion of the testicle occurring in a boy fifteen years of age.

The trouble began while the patient was in the classroom at school. Entirely spontaneous pain suddenly occurred in the left testicle. He noticed that the scrotum was red and swollen. He went home and went to bed, but he was able to return to school the following day. Again he had to go home and the physician called treated the condition as a simple inflammation. It was therefore fiften days before he finally came to operation.

Examination on entering the hospital showed no evidence of infection either in the urinary tract or elsewhere. At operation the testicle was found twisted two full turns upon its pedicle. It was also upside down. The testicle was untwisted and replaced and the patient made a good recovery.

The Electro-Surgical Scalpel in Renal Surgery

Scott states (New York State Journal of Medicine, April 1, 1931,) that the electric scalpel in operative procedures on the renal parenchyma, greatly decreases the amount of hemorrhage.

This fact renders it possible to get along with fewer sutures and there is thus less impairment of renal function. Also decreased hemorrhage permits quicker and better operative work.

He describes a number of cases including a resection of the lower pole of the kidney, in which he has operated with his knife and has been greatly impressed with its advantages.

Torsion of the Kidney

Westerborn describes (Acta Chirurgica, January, 1931,) a case of unusual torsion of the kidney resulting in an abnormal course of the renal vessels, so that the kidney was constricted by them at its middle.

The kidney had undergone a rotation amounting to three-fourths of a full turn and the kidney vessles had been pulled around with it so that they made very nearly a complete loop around the kidney before entering it at the hylus. The result was a constriction as if a ring had been thrown about the middle of the kidney. The patient gave a history of occasional abdominal pains extending over a number of years and entered with a dull boring pain in the region of the right kidney.

The true nature of the condition was revealed by a pyelogram which showed the right kidney displaced downward and with its calices pointing to the median line. This kidney could be felt and its lobular character was determined before operation.

The kidney was freed at operation and the vessels carefully dissected loose. The kidney was now rotated through an angle of 270 degrees. This resulted in a twisting of the ureter, but this latter condition was relieved by simply loosening the ureter from its surroundings throughout its upper half. The kidney was fixed in its normal position by a suture thrown over the eleventh rib. The patient was discharged without symptoms at the end of four weeks.

Lac-Bismo
(HART)
See Description, Journal A. M. A. Volume XLVII, Page 1488.
A Scientific combination of Bismuth Subcarbonate and Hydrate suspended in water. Each fluidrachm contains 2½ grains of the combined salts in an extremely fine state of subdivision.
Medical Properties: Gastric Sedative, Antiseptic, Mild Astringent and Antacid.
Indications: In Gastro-Intestinal Diseases, Diarrhoea, Dysentery, Cholera-Infantum, etc. Also suitable for external use in cases of ulcers, etc.
E. J. HART & CO., Ltd., Mfg. Chemists
New Orleans

OFFICERS OF COUNTY SOCIETIES, 1931

COUNTY	PRESIDENT	SECRETARY
Adair	I. W. Rogers, Watts	D. P. Chambers, Stilwell
Alfalfa	Z. J. Clark, Cherokee	L. T. Lancaster, Cherokee
Atoka-Coal	J. S. Fulton, Atoka	C. C. Gardner, Atoka
Beckham		T. J. McGrath, Sayre
Blaine	W. K. Jacoby, Watonga	W. F. Griffin, Watonga
Bryan	J. T. Wharton, Durant	J. L. Shuler, Durant
Caddo	J. H. Cantrell, Carnegie	P. H. Anderson, Anadarko
Canadian	Wm. J. Muzzy, El Reno	A. L. Johnson, El Reno
Carter	R. H. Henry, Ardmore	R. C. Sullivan, Ardmore
Cherokee		
Choctaw		Robt. L. Gee, Hugo
Cleveland	M. M. Wickham, Norman	D. G. Willard, Norman
Coal (See Atoka)		
Comanche	F. W. Hammond, Lawton,	L. W. Ferguson, Lawton
Craig	D. B. Stough, Vinita	P. L. Hays, Vinita
Creek	C. L. McCallum, Sapulpa	G. C. Croston, Sapulpa.
Custer	Lealon L. Lamb, Clinton	E. E. Darnell, Clinton
Garfield	S. H. McEvoy, Enid	John R. Walker, Enid
Garvin	L. P. Smith, Elmore City	J. R. Callaway, Pauls Valley
Grady	W. H. Livermore, Chickasha	H. M. McClure, Chickasha
Grant	A. Hamilton, Manchester	E. E. Lawson, Medford
Greer	J. T. Lowe, Mangum	J. B. Hollis, Mangum
Harmon	Jas. E. Jones, Hollis	Russell H. Lynch, Hollis
Haskell		R. F. Terrell, Stigler
Hughes	W. L. Taylor, Gerty	D. Y. McCary, Holdenville
Jackson	E. S. Crow, Olustee	E. W. Mabry, Altus
Jefferson	F. M. Mingus, Ringling	Wm. C. Burgess, Ringling
Kay		M. S. White, Blackwell
Kingfisher		
Kiowa	A. H. Hathaway, Mt. View	J. H. Moore, Hobart
Latimer	T. L. Henry, Wilburton	E. B. Hamilton, Wilburton
LeFlore	R. M. Minor, Williams	W. M. Duff, Braden
Lincoln	J. S. Rollins, Prague	F. H. Norwood, Prague
Logan	C. B. Barker, Guthrie	R. F. Ringrose, Guthrie
Marshall	P. F. Robinson, Madill	J. H. Veazey, Madill
Mayes		Sylba Adams, Pryor
McClain	I. N. Kolb, Blanchard	O. O. Dawson, Wayne
McCurtain	R. D. Williams, Idabel	R. H. Sherrill, Broken Bow
McIntosh		W. A. Tolleson, Eufaula
Murray	O. W. Sprouse, Sulphur	H. C. Bailey, Sulphur
Muskogee	Wm. P. Fite, Muskogee	E. H. Coachman, Muskogee
Noble	B. A. Owen, Perry	J. W. Francis, Perry
Nowata		S. P. Roberts, Nowata
Okfuskee	L. J. Spickard, Okemah	J. A. Kennedy, Okemah
Oklahoma	J. M. Alford, Okla City	K. J. Parks, Okla City
Okmulgee	W. S. Watson, Okmulgee	M. B. Glismann, Okmulgee
Osage	M. Karasek, Shidler	M. E. Rust, Pawhuska
Ottawa	F. V. Meriwether, Miami	W. G. Chesnut, Miami
Pawnee		
Payne	C. E. Sexton, Stillwater	R. E. Roberts, Stillwater
Pittsburg	W. W. Sames, Hartshorne	F. L. Watson, McAlester
Pontotoc	E. A. Canada, Ada	W. F. Dean, Ada
Pottawatomie	J. I. Gaston, Shawnee	F. Clinton Gallaher, Shawnee
Pushmataha	D. W. Connally, Clayton	John S. Lawson, Clayton
Rogers	A. M. Arnold, Claremore	W. A. Howard, Chelsea
Seminole	T. H. Briggs, Wewoka	H. A. Kiles, Konawa
Stephens	C. C. Pruitt, Comanche	D. Long, Duncan
Texas		R. B. Hayes, Guymon
Tillman	Coyne H Campbell, Frederick	J. C. Reynolds, Frederick
Tulsa	Henry S. Browne, Tulsa	Carl F. Simpson, Tulsa
Wagoner		John D. Leonard, Wagoner
Washington	H. G. Crawford, Bartlesville	J. V. Athey, Bartlesville
Washita		C. B. Sullivan, Colony
Woods	J. E. Hammer, Kiowa, Kans.	O. E. Templin, Alva
Woodard		C. J. Forney, Woodward

NOTE—Corrections and additions to the above list will be cheerfully accepted.